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PRODUCT COMPARISON

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Total control

insisted that every desktop get the latest version of Lotus Notes by tomorrow morning — with no glitches. Help continued in RESULTS at A GLANCE on page 61



Building a new career: Network architects will play a key role in the future success of your LAN. 53

WebPerfect: Integrated HTML editing helps make WordPerfect for the Macintosh worth a look. 98

- WordPerfect and the Web
- Integrated Web page editing
- BookMarks toolbar
- HTML toolbar
- Bundled Netscape Navigator

Road to fork for Win95, NT

OSes will share technologies but retain separate code bases

By Jason Pontin

ALL ROADS ARE NOT going to lead to Cairo after all.

Microsoft Corp., in a move that has long-term repercussions for Windows deployment at 15 sites, has given up any plans to synchronize the Windows 95 and Windows NT code base, company officials acknowledged last week.

"There will be no product convergence, because there's no single

product that can meet the needs of every kind of customer," said Jim Allchin, senior vice president of Microsoft's Business Systems division, the group responsible for Windows NT.

"We expect to see Win95 and its successors broaden in the consumer market. Long term, we want NT to be the standard for corporations on the desktop and server," Allchin added.

Until now, Microsoft has indicated that the successors to Windows 95 and NT would merge into a single code base sometime after Microsoft delivered Cairo, an object-oriented version of NT due out late next year.

But as the consumer market explodes, the company has realized that using a single code base to address multiple markets is no

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Win95 to get equal time on IBM LANs

By Paul Krill

BOWING TO THE INEVITABLE, IBM this week will unveil plans to give Windows 95 equal status with OS/2 clients on LANs.

The company plans to allow Windows 95 clients to be used as the administration console for the first time in OS/2 Warp Server, its next-generation PC LAN operating system.

This capability will allow network managers to perform functions such as setting user access privileges to network resources, and establishing groups on an OS/2 server, from a Windows 95 client, said a source close to IBM.

Administrative functions for OS/2 servers have never been available on the Windows 3.x platform. OS/2 Warp Server, currently in beta testing, is scheduled to ship in March 1996; the new Windows 95 client will be available at the same time.

The capability to administer existing OS/2 LAN Server networks also may be included in the Windows 95 client, the source said.

This approach means that sites

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Experts tell us that **convenience, context, and a customized curriculum** are crucial. See page 51.



Netscape takes stab at easing Web chores

By Nick Wingfield

AS PART OF A CONTINUING effort to transform World Wide Web servers into platforms for interactive applications, Netscape Communications Corp. next week will unveil its first management tool and a major multimedia upgrade to its Web browser.

Netscape LiveWorks, due in the fourth quarter, is a graphical tool for Windows 95, Windows NT, and Unix that simplifies managing

Web document hyperlinks, one of the most tedious aspects of Web administration.

Using LiveWorks, a Web administrator will be able to move a Hypertext Markup Language (HTML) document to a new directory and have all hyper references to that document automatically updated. Previously, an IS manager would have had to manually relink those documents.

> NETSCAPE page 20

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NETSCAPE

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System upgrades

Intel plans OverDrive for Pentium systems

By Brooke Crothers

UPGRADE MAY NOT longer be a dirty word.

As Intel Corp. filled out its line of Pentium OverDrive processors for 486-based systems this week, it also laid out a road map for high-speed Over Drive processors it's designing for Pentium systems.

Intel's forthcoming OverDrives for Pentium-based systems will be introduced next year, with OverDrives available for existing 60-, 75-, 90-, and 100-MHz Pentium systems.

The Pentium OverDrive processor for 60-MHz Pentium PCs will boost the clock rate to 120 MHz, the OverDrive for 75-MHz Pentium systems will give users a 125-MHz Pentium system, and the OverDrive for 90-MHz Pentiums will run at 150 MHz.

The OverDrive processors for 100-MHz Pentium systems will be running even faster, though Intel officials declined to disclose clock speeds at this point.

The \$299 Pentium OverDrive processor Intel actually introduced this week — for systems with 237- or 238-pin upgrade sockets — runs at 83 MHz and is designed as an

upgrade for 33-MHz 486DX and 486DX/66 systems.

Intel's current 63-MHz Pentium OverDrive processor, designed for 25-MHz 486 systems, will drop in price to \$279.

The high-speed Pentium OverDrive processors due to ship next year may be a more attractive upgrade option than those available for 486 systems.

Existing Pentium PCs are better capable of realizing the full performance of the upgrade, observers said, with faster disk drives, the PCI architecture, and higher performance subsystems already in place.

"If the price is around \$300, this [will be] attractive," said Bob Holmes, a principal at RDH Associates, a company that does computer consulting in Arcadia, Calif.

But demand for the new 83-MHz Pentium processor designed for 486 systems is weak.

"Some individuals might [upgrade], but it's not part of our company," said an IS manager at a large East Coast Fortune 500 company.

In the end, it would be less expensive and more practical to buy a new system, because an upgrade

from a 486 to a Pentium necessitates both a memory and hard disk drive upgrade, said the IS manager.

"If you do one, you have to do all three. If you end up doing all three, it's cheaper to buy a new system," the manager added.

Attempting to upgrade systems from a 486 to a Pentium might not actually solve anything, Holmes suggested.

"If you look at the candidates for upgrades, processors might not be the bottleneck at all," Holmes said. "It could be memory; it could be the display adapter."

Although users remained skeptical about Intel's existing Pentium OverDrive upgrades for 486-based systems, Intel is touting a possible 100 percent performance improvement.

On identically configured Dell Computer Corp. systems, one with a 486DX/66 processor and another with the 83-MHz Pentium OverDrive, the OverDrive was almost twice as fast as the 486.

Intel is also offering a booklet designed to identify which systems can use the chip.

However, Intel is also telling users to check with the manufacturer.

INTEL PREPS PCI CHIP SET

Intel Corp. plans to bring out a relatively low-cost, PCI chip set code-named "Mars" for P6-based desktops by the end of the year. The chip set will be targeted at single-processor P6 desktops, although it may also support dual-processor P6 desktops, sources said. Intel will bring out a 150-MHz P6 for the desktop by the end of the year. The company is already planning to ship a more expensive P6 "PCIset" server chip set (previously called "Orion") that supports dual-PCI buses for the P6. This chip set is targeted at 133-MHz P6-based servers and, later, 166-MHz P6-based servers.

AT DEADLINE

NOVELL EYES FARMING OUT UNIX WORK

Novell Inc., needing to conserve its development resources, next week is expected to announce partnerships with vendors such as Hewlett-Packard Co. to off-load development work to licensees of Unix System V. This move is expected to allow Novell to concentrate its efforts on developing SuperNOS, which will combine attributes of UnixWare and NetWare to create a new distributed platform sometime in 1996. HP may either purchase from Novell a lifetime Unix development license, similar to one recently purchased by Sun Microsystems Inc., or may take a more active, industrywide development role in Unix, said Judith Hurwitz, president of the Hurwitz Consulting Group, in Newton, Mass.

NOTES 4.0 SCHEDULED FOR JANUARY

Lotus Development Corp. is planning to deliver its long-awaited version of Notes 4.0 in early January, according to a source close to the company. Representatives for the company have repeatedly promised delivery of the product by the end of this year. The slight delay is not expected to hamper the product's chances because Microsoft Corp.'s competitive product, Exchange, is not expected until early next year.

INTERBASE 4.0 TARGETS UNIX SERVERS

Borland International Inc. will this week announce Version 4.0 of its InterBase relational database server on Solaris, SunOS, HP-UX, AIX, SCO, and AT&T Unix platforms, priced from \$10,000 per server. The company also plans a 32-bit Windows 95 version of the database, available separately and bundled with Borland's Delphi development tool. Pricing has not been set. Windows NT and NetWare Loadable Module versions of InterBase 4.0 began shipping in January.

BRIEFLY NOTED: NOVELL, seeking to focus on specific product areas, has reorganized its Information Access and Management Group into three divisions covering Internet, communications, and management products. ▶ ORACLE CORP. will release Version 1.2 of its Developer/2000 development tool later this year that supports SCO Unix, DG-UX, OSF/1, VMS and OpenVMS, as well as the previously supported SunOS, Solaris, HP-UX, and AIX. ▶ SILICON GRAPHICS INC. last week announced that HP will support its OpenGL graphics library. ▶ The OpenDoc effort for integrating software components gained support from ORACLE and FUJITSU LTD. last week when the two companies announced that PowerObjects 1.1 and Intelligent Pad will support the standard. ▶ U.S. ROBOTICS INC. announced last week its acquisition of PALM COMPUTING INC., a developer of OS and application software for hand-held computers and communications devices. ▶ Following its acquisition of SABER SOFTWARE CORP., McAFFEE ASSOCIATES INC. this week will announce its strategy to merge the Saber and McAfee management software lines. Saber Menus and McAfee's NetTools will become Saber Tools. Saber's software metering and software distribution products will be replaced by the McAfee versions. ▶ 3COM CORP. will ship next week LAN Emulation software for its Asynchronous Transfer Mode and Ethernet switches.

FROM THE NEWS DESK • JAI SINGH

PC and cyberspace: absurd or sublime?

"Tastes great." "Less filling." Watching Miller Lite beer commercials gives you a clear sense that, even though the adversaries offer differing opinions, there was never a question of biting the hand (beer) that feeds them. Not so when the

top two guns pontificate on the PC and its role in the age of cyberspace.

"A PC is a ridiculous device ... PCs are not going to be the center of the universe anymore," Oracle's Larry Ellison told a gathering at the European IT Forum in Paris last week.

"The PC will take on new forms. Wallet PCs will be carried around and portable PCs will all be hooked up into a unified network," Bill Gates told the same audience.

Stricken by the glitz or power — depending on your viewpoint — of the Internet, the two men are taking

diametrically opposed approaches to this phenomenon. Gates believes the Internet will drive growth in PC usage. Ellison and his honchos believe the wave of the future is "Internet appliances" (see page 6) that are essentially dumb terminals.

One can understand the Oracle chief's Pollyannish view that the Internet is the next computing revolution. But no one has suggested that this will mean the death of the PC.



Do you know what technology this was? The picture phone. The year? 1912. As for the Internet, the digerati are still debating whether it's a revolution.

Correction: In my column last week, the FAAS 9020 mainframe was incorrectly identified. Also, it's the Amish, not the Mennonites, who still ride the horse and buggy.

Write me via the Internet at jai.singh@infoworld.com.

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You're about to plunge into client/server.



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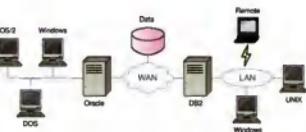


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Microsoft to ship 32-bit Visual C++

■ Developers gain Component Gallery, App Wizard

By Martin LaMonica

MICROSOFT CORP. hopes to ensure the loyalty of its army of Windows developers at Microsoft Developers Days this week when it launches Version 4.0 of its Visual C++ compiler.

The 32-bit Visual C++ 4.0 introduces the Component Gallery, a built-in browser for storing custom C++ class libraries, OLE controls, and extensions to Microsoft Foundation Classes. The revamped tool also lets users create App Wizards, which give a developer the steps for following customized company standards for building applications.

Analysts said with this release, Microsoft is catering to a corporate IS market through features that encourage the reuse of code, for

example, rather than appealing to primarily ISVs and VARs with upgrades based on raw performance.

Users said the ability to customize the C++ environment via the App Wizards can significantly flatten the learning curve.

"When we get someone new who needs training, he can go through the AppWizard and he's up and running rather than starting from scratch," said Mike Regelski, director of software development for consultancy Lend Systems International, in Rochester, N.Y.

Visual C++ 4.0 also includes Class Views for looking at an application as a set of class libraries rather than files, the Jet 3.0 database engine, data access controls, and a wizard for making custom controls.

The Visual C++ language will now support run-time type information as well as name spaces.

Microsoft intends to ship Visual C++ in October for Intel-based systems, priced at \$499, and for the Power Macintosh, priced at \$1,999. By the end of the year, the company plans to add Visual C++ and RISC Edition for MIPS, Alpha, and PowerPC priced at \$499.

Microsoft will also launch this week 32-bit versions of Visual Test 4.0, Fortran PowerStation, and Visual Basic 4.0, all to ship at the end of the month. The Visual Basic 4.0 Enterprise Edition, for team development, will cost \$999; the Professional Edition \$499; and the Standard edition aimed primarily at beginning developers will cost \$99.

OLE custom controls

ObjectSoft introduces OLE Broker on World Wide Web

By Martin LaMonica

THE THIRD-PARTY OLE component industry will get a shot in the arm from the launch of an Internet service, called OLE Broker, for test-driving OLE objects during this week's Microsoft Developer Days.

"Dev Days" will be held this week in 12 U.S. cities and will feature the official launch of Microsoft

Monica, Calif.-based VeriTest Inc. About 40 vendors, including Microsoft, Progress Software Corp., and ProtoView Development Corp., said last week they will post more than 250 components on-line, and at least 100 other vendors are considering joining that list, said George Feibis, president of ObjectSoft, in Englewood, N.J.

The OLE Broker list of components will be indexed and include links to vendors' Home pages. While users can now demo products, ObjectSoft is exploring encrypted Web products that will allow customers to buy products on-line, Feibis said. The service, which costs \$130 up front and \$200 a year, can be accessed at www.olebroker.com.

The point of OLE Broker is that it's a central location, not a specific local or regional service. It will let users browse and examine the help files of available OLEware, including custom controls and eventually OLE automation server, certified to comply with Microsoft guidelines through a logo program now being developed by ObjectSoft and Santa

Clara's Visual C++ 4.0 and Visual Basic 4.0, as well as announcements of a slew of third-party OLE custom controls (OCXes). Although most of the third-party component vendors participating this week will sell their wares through traditional reseller channels, ObjectSoft Corp. will use the occasion to help pioneer a new channel using its World Wide Web-based OLE Broker service.

The service is designed to let users browse and examine the help files of available OLEware, including custom controls and eventually OLE automation server, certified to comply with Microsoft guidelines through a logo program now being developed by ObjectSoft and Santa

Powersoft under pressure to prove itself

By Martin LaMonica

AFTER MONTHS of delays, Powersoft Corp. promises to deliver PowerBuilder for Solaris by the end of the year. But the company is still under the gun to prove it can keep PowerBuilder competitive with new development technologies.

A full Windows 95 version of PowerBuilder won't make it to users' hands until the first half of next year, while competitors, such as Gupta Corp.'s SQLWindows for Windows 95, are due before the end of the year.

Users said features in PowerBuilder 5.0 for Windows 95, such as a compiler, a repository for team development, and the capability to make multiterm applications, will keep the company competitive. (See "PowerBuilder to get compiler," June 5, page 6.) But some are doubtful that Powersoft will deliver what it promised.

"Version 4 didn't turn anyone on its ear. A major issue with release 5.0 is whether Powersoft has the vision and the strategy to take their users to the next level," said Marshall Senk, a financial analyst with Robertson Stephens & Co., in San Francisco. "There's a lot of skepticism as to whether it can scale to hundreds and thousands of users. Some people say the product needs to be rearchitected."

And timing remains a issue.

"I was hoping to see Version 5.0 in the fourth quarter or early next year. That may hurt them if it's as late as the second quarter," said Gary Schenier, consultant at the Solutions Source, in San Diego, Calif.

All this has led some analysts to say that Powersoft is under building

pressure to maintain its leading position in the rapid application development tools market.

PowerBuilder still enjoys a loyal user base, but observers note the company is under pressure from low-end tools, such as Microsoft Corp.'s Visual Basic, Borland International Inc.'s Delphi, and Oracle Corp.'s Developer 2000.

PowerBuilder currently is in the No. 2 position behind Visual Basic in the visual tools arena and will sell about 150,000 units this year, compared to roughly half that from rivals Gupta Corp. and Progress Software Corp.

But analysts said the company's growth is slowing. Borland International Inc.'s Delphi, for example, has gotten off to a fast start since it began shipping earlier this year. According to projections from re-

search company International Data Corp., in Framingham, Mass., Delphi will sell about 100,000 copies this year.

Powersoft is also experiencing the aftereffects of its acquisition by Sybase Inc., which posted a net loss in the second quarter after an acquisition spending spree.

"There's no question they're facing more challenges than their competitors, not just in financials, but in getting a coherent strategy and tight delivery schedule," said Evan Quinn, an IDC analyst. "They're already vulnerable, and a lot of vendors are moving in on Powersoft's client/server market space."

Powersoft still cannot give a firm ship date for the Macintosh version. Both the Unix and Mac versions were initially slated for delivery last December.

Oracle hunts for media acquisition to boost video server market

By Marc Ferranti

ORACLE CORP. is looking to acquire a company in the entertainment and media industry, according to Ray Lane, executive vice president of the company.

Oracle is looking to acquire a company in the entertainment and media industries to increase the market for its multimedia server technology, Lane said.

"We want to grow the market before anyone has a chance to catch up," said Lane.

Lane declined to specify the companies under consideration or the amount of cash Oracle is willing to

spend. He said Oracle probably would not buy a company as large as Lotus Development Corp., but confirmed that Oracle had been interested in purchasing Lotus.

Lane said that Oracle is also working with various hardware manufacturers such as Samsung Electronics America Inc., NEC Technologies Inc., and Philips LMS to help develop low-cost portable devices that will replace PCs.

"These machines will cost \$400 to \$500 and let you download the latest version of data," Lane said.

Lane last week also confirmed that the Redwood Shores, Calif.,

company earlier this year scuttled an attempt to acquire Apple Computer Inc.

"We did consider acquiring Apple, and the reason for it was that we thought the market needed an alternative desktop operating system," Lane said.

But Lane added that Oracle's main development efforts are now focused on Windows 95.

"It doesn't matter that the Mac is better — or OS/2," he said. "That war is over."

Marc Ferranti is the Paris bureau chief for the IDG News Service.



EXECUTIVE VICE PRESIDENT Ray Lane says Oracle is on the lookout for a media company.



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Changes in IBM leadership

Reiswig and Thoman take on new roles

By Ed Scannell and Jason Pontin
IBM's CLIMB back to the top of the PC food chain will have to be done under some new leaders.

Replacing G. Richard Thoman at the PC division is Robert Stephenson, a career IBM employee who most recently ran IBM's North American sales operations. Thoman was named IBM's chief financial officer last week, replacing Jerome York, who left IBM to help pursue a takeover of Chrysler Corp.

Meanwhile, Lee Reiswig, general manager of IBM's Personal Software Products (PSP) division, has been replaced by John W. Thompson, formerly general manager of IBM's marketing and solution developer programs.

Reiswig reports to John M. Thompson, IBM senior vice presi-

dent, as general manager of technical strategy for IBM's Software Group. Larry Loucks, formerly vice president of software architecture at PSP, will report to Reiswig as vice president of technology. Gian Carlo Bisone, formerly vice president of North American marketing for Compaq Computer Corp., will take John W. Thompson's previous post.

In contrast to the struggling software group, IBM's hardware group has finally shown some improvement in terms of being able to meet market demand for its PCs. But Thoman said it could be another 12 to 18 months before IBM can completely retool its manufacturing to support a build-to-order strategy.

IBM's latest approach involves segmenting systems into "A, B, or C" categories, with the company build-

ing some systems to order; preconfiguring some systems; and offering some systems that will only be manufactured after orders come in.

Thoman said he is leaving the operation in good hands with Stephenson, who will be surrounded by a team that helped elevate IBM to No. 2 in the portables market and stopped erosion in the desktop and server markets.

Separately, Thoman said he was encouraged by a recent IBM survey of 100 corporate accounts.

"We found that roughly 20 percent had stripped Windows off and kept OS/2 [and] 40 percent had stripped off OS/2 and kept Windows, which to me is a sign that OS/2 has some legs in the corporate space," Thoman said. The rest kept both.

Design flaws hamper 604 SMP servers

Cache trouble limits usefulness

By Tom Quinlan

DESIGN PROBLEMS WITH the PowerPC 604 have forced IBM and Motorola back to the drawing board, because the high-speed processor is unsuitable for use in large-scale symmetric multiprocessing (SMP) designs.

PowerPC vendors identified the problem as a lack of cache coherency when more than two processors are used.

Officials at Motorola indicated a partial fix has been implemented in the latest revision of the 604, enabling it to support four-way processing, but the delay will push the introduction of 604-based SMP servers into 1996.

"When we first came out with the 604, it couldn't go beyond a uni-processor design," said Phil Pompa, director of marketing for Motorola's RISC microprocessor division.

The revised chip has been out for about a month now, he added.

However, sources familiar with the problems said a fully fixed version of the processor wouldn't begin sampling until October.

But problems with the 604's capability to work in an SMP environment have already helped to delay Apple Computer Inc.'s 4-processor Shiner server introduction until 1996. It was originally expected to arrive in October, sources said.

The delay also caused Zenith Data Systems Corp. to introduce its version of the Escala line with the 601 PowerPC chip.

"There's a problem with the cache coherency with the 604," said Martin Strakhovsky, director of PowerPC product marketing for Zenith. "It works fine with two processors, but when you get beyond that you have problems."

"They know what the problems are, they already have the fix in place," Strakhovsky said, "but when you're talking about SMP there's an awful lot of testing that has to be done before you can ship systems."

Zenith doesn't expect to offer a 604-based SMP solution until the first quarter of next year at the earliest. [\(See related story, page 35.\)](#)

IBM and Groupe Bull are also shipping 601-based SMP servers.

In SMP design, synchronizing the cache used for each individual processor is crucial for system integrity and performance.

Some designs, such as DayStar Digital Inc.'s asymmetric PowerPC 604-based 4-processor system, are not affected by the problem, sources said.

"Cache coherency is one of the hardest things to perfect in an SMP design," said Michael Slater, publisher of the *Sebastopol, Calif.-based Microprocessor Report*.

Scanner to detect Internet loopholes

By Nick Wingfield

INTERNET SECURITY Systems Inc. will this week ship Internet Scanner, Version 3.0, a Unix-based security

program that detects loopholes in Internet fire walls, World Wide Web servers, and other TCP/IP software.

The product works by simulating more than 100 known hacker attack methods, which are used to gain unauthorized access to network resources, such as IP spoofing. After scanning designated network devices, Internet Scanner generates a report that details security vulnerabilities and recommends fixes, the company said.

The Internet Scanner upgrade comes in the wake of the April release of the Security Administrator's Tool

for Analyzing Networks (Satan) freeware program. Satan unnerved network administrators who feared it would assist hackers in breaching security systems.

However, because of the need for frequent software updates and technical support, Satan's freeware status has made it unattractive as a security tool, according to Internet Scanner users.

New features in Version 3.0 include tests for IP spoofing, firewall integrity, Web server security, and E-mail security. It also supports parallel scanning of multiple devices.

Internet Scanner, Version 3.0, is available for SunOS 4.x, Solaris 2.3, HP-UX, and AIX 3.2. Pricing is based on the number of devices to be scanned, from \$795 for 10 devices to \$99,995 for 10,000 devices.

INTERNET SCANNER checks for security holes in fire walls and network devices.

AT&T set to detail plan for Internet services

By Nick Wingfield

AT&T WILL THIS week announce the immediate availability of the first element in its planned suite of Internet services.

The services, which will include installation of leased-line connections to the Internet and 24-hour network support, will be offered through AT&T WorldNet Services, a new division of AT&T announced mid-August.

Providing the Internet expertise for AT&T will be BBN Planet Corp., a Cambridge, Mass.-based company that delivers Internet access to

more than 1,000 organizations around the United States, according to BBN Planet. AT&T announced in early July it would be a value-added reseller for BBN Planet's services.

AT&T will this week announce pricing details on its business services and the names of corporate customers, the company said.

Although the company would not confirm pricing information, AT&T is expected to charge slightly more for its services than BBN Planet, because it will provide other value-added services, said Barbara Bellissimo, western region marketing

director for BBN Planet.

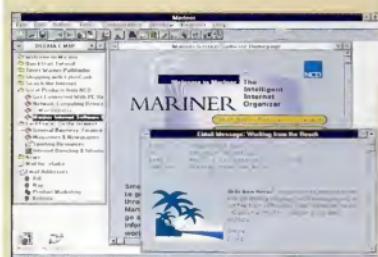
For a 56Kbps leased-line connection to the Internet, BBN Planet charges between \$6,000 and \$11,400 annually, Bellissimo said.

AT&T's Internet access services may lure corporate customers seeking a one-stop multimedia communications provider, said Beth Gage, broadband consultant at TeleChoice Inc., a telecommunications consultancy based in Verona, N.J.

AT&T is also developing an Internet fire wall called CyberSecurity, according to sources close to the company.

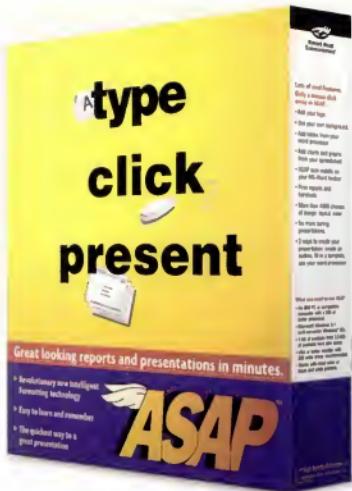
PRODUCT SPOTLIGHT

MARINER FOR WINDOWS BETA IS FREE



CD Software Corp. last week delivered a free beta of its Mariner for Windows software that integrates World Wide Web browsing, File Transfer Protocol, Gopher, E-mail, Usenet news, Internet Relay Chat, and other tools in a single interface. The product, adopted by AT&T, comes with a VxD TCP/IP stack and a Point-to-Point Protocol dialer and can be downloaded from <http://www.mariner.ncd.com>.

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Talent CEO to join Motorola

■ Officials say framework strategy is still on course

By Ed Scannell

THREE YEARS AFTER he took over Talent Inc.'s helm and two months after the final release of its Common-Point object-oriented development environment, President Joe Guglielmi resigned last week and will become vice president and general manager of Motorola Inc.'s computer division.

A general manager in IBM's Power Personal Systems division, Dick Guarino will replace Guglielmi as acting CEO for the next three months, although Talent is also initiating an executive search.

Guglielmi's departure does not, however, foreshadow any sweeping changes in product strategies or, as has been recently rumored, layoffs,

according to Marie Amaruso, corporate vice president of marketing for Talent.

Talent officials also denied speculation that Guglielmi was pressured to leave but acknowledged that Guglielmi's departure represents an end to the development phase of the first set of object-oriented frameworks for IBM's AIX and OS/2 operating systems.

The company is still working to finish the first sets of frameworks for the Macintosh, HP-UX, and Windows NT operating systems, but the release of the OS/2 and AIX versions marks a beginning to the company's serious commercialization of these technologies.

"As we go into the deployment and packaging of the products, we

are beginning to talk more to corporate accounts," Amaruso said. "We are beginning a new phase of the company."



GUGLIELMI TO HEAD Motorola's computer division.

ISVs bolster human resource applications

By Ilan Greenberg

THE HRMS/EXPO next week, in San Jose, Calif., will showcase a long list of new offerings, including the unveiling of several Windows 95 clients and electronic collections of information about hiring and firing laws for professionals overwhelmed by new hiring regulations.

The vendors attending HRMS/Expo are anxious to establish name recognition in a market that is growing rapidly and is due to top \$1 billion by 1999, according to International Data Corp., a research company in Framingham, Mass.

Companies to introduce new human resource software packages next week include:

- IHS Group, in Englewood, Colo., will announce the release of PeopleWorks for Windows 3.x, a comprehensive collection of state and federal employment laws and regulations, as well as related information compiled to help companies stay in compliance with those laws. Prices will range from \$695 to about \$3,000 based on the amount of information purchased.

- Intellisys Corp., in Chattanooga, Tenn., will introduce FMLA Tracker, a collection of legal information and policy advice aimed at companies who need to change their policies to comply with the recently passed federal Family and Medical Leave Act. Priced at \$1,495, software for Windows 95 will ship in January.

- APS Inc., in Oceanside, Calif., will ship its SmartSearch for Windows, a Windows 95 SmartSearch of its client/server employment management system, formally called SmartSearch2. New enhancements will include a job applicant tracking

program. SmartSearch for Windows 95 clients and Unix and Windows NT servers starts at \$25,000.

- Automatic Data Processing Inc., in Atlanta, will show the Windows 95 client for its client/server series HRMS human resource management system. The upgrade is due to ship next spring complete with modules for payroll and benefits. The company plans to lease access to the software starting at \$3,000 per month, depending on the number of users and configuration.

- Lawson Software, in Minneapolis, will demonstrate its Lawson Employee Information Center, a new kiosk development component for its client/server Open Enterprise

program. SmartSearch for Windows 95 clients and Unix and Windows NT servers starts at \$25,000.

- Abra Software Inc., in St. Petersburg, Fla., will announce the release of Abra 3.0 for Windows 3.x, a benefits, payroll processing, project costing, and employee attendance tracking package. The upgrade introduces an interactive interview feature to guide users as they set up payroll and tax procedures. Pricing starts at \$695.

- Lawson Software, in Minneapolis, will demonstrate its Lawson Employee Information Center, a new kiosk development component for its client/server Open Enterprise

3Com to offer Fast Ethernet across hub and switch lines

By Luc Hatlestad

3COM CORP. WILL THIS week detail rollout plans for a family of Fast Ethernet hubs, switches, and software designed to offer users maximum flexibility in the implementation of high-speed networks.

"This product line [allows me to] grow horizontally or vertically," said Dan Sweeney, manager of network operations for Quarterdeck Corp., an Internet software maker in Santa Monica, Calif.

3Com plans to provide Fast Ethernet capabilities across its product range by mid-1996.

"[3Com] is trying to let people know that they have everything you need for Fast Ethernet — now and in the future," said Mary Petrosky, senior analyst with the Burton

Group, a Salt Lake City consultant.

But customers will need to decide if they want to pay the higher cost of Fast Ethernet, according to Petrosky. 3Com did not announce pricing, but Petrosky estimated that Fast Ethernet costs would be about 15 percent higher per port than 10Base-T technology.

The pricing issue will make Fast Ethernet a questionable item for people who don't need a dramatic performance increase," she said.

Petrosky said the enlarged 3Com Fast Ethernet product family would place 3Com on a par with Bay Networks Inc., the other internetworking vendor with a comprehensive range of Fast Ethernet products. 3Com will ship the LinkSwitch 3000 SuperStack Fast Ethernet

Internetworks

Bay Networks, Xylogics to focus on remote access

By Luc Hatlestad

BAY NETWORKS INC. last week acquired remote access vendor Xylogics Inc. in a deal that will improve Bay Networks' capability to offer remote access to networks.

The deal was completed concurrently with Xylogics' announcement of a new remote access server and an ISDN product line, both of which will help fill out Bay Networks' remote access range.

"With the release of these products, Xylogics becomes a very strategic fit with Bay, which until now has had a really weak set of remote-access offerings," said Jeremy Duke, senior analyst at InStat Inc., in Scottsdale, Ariz.

The acquisition was essential for Bay Networks to be able to keep pace with remote access products that competitors 3Com Corp. and Cisco Systems Inc. have had for about a year.

Another analyst said he expected the deal to benefit both companies because it cements an existing relationship. Xylogics' remote access server technology is shipping in Bay Networks' System 5000 product.

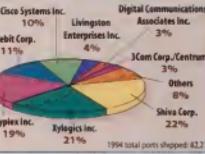
"This is a great deal for Bay," said Larry Howard, an analyst for InfoSystems Inc., in San Jose, Calif. "They've already had the remote-access OEM agreement, so it shouldn't take long to get Xylogics

under the scope of [Bay's] Optivity [network management system]."

Under the terms of the deal, Bay will exchange 1.05 shares of its stock for each outstanding share of Xylogics common stock, making the transaction worth approximately \$330 million. Xylogics officials said the company will honor existing deals with Bay Networks competitors such as Cabletron Systems Inc. and a deal announced last week with Chipcom Corp.

Xylogics announced the Remote Annex 6100 channelized T1 remote access server and the Nautica line of

1994 worldwide remote access server market



1994 total units shipped: 42,378

SOURCE: INSTAT INC.

remote access/bridge routers for ISDN and leased-line networks.

The Remote Annex provides remote LAN access for enterprise networks using digital T1 lines. The Nautica Corporate LAN Access Module, a router designed for home or branch offices, and the multiport Marin router provide remote connections to mid- to large-size branch offices. All products are scheduled to ship in October.

Among the products scheduled for release early in 1996 are:

- A slide-in 10Base-T module for the LANPlex 2500 departmental switch that will allow users to construct workgroup, departmental, or data center networks with combinations of Ethernet, Fast Ethernet, and FDDI.
- A Tri-Media Module (TMM) for the LANPlex 6000 data center switch that will enable users to create 100Base-T server farms and connect to FDDI backbone bones.
- A Fast Ethernet Switching Module (FESM) that allows connection of up to 66 switched 100Base-T segments to the LANPlex 6000.
- A 10/100 to the switching module for the LinkBuilder MSH multiservices hub.

Advanced

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Diagnostics

Printer

Control Panel

Page Control

Page Setup

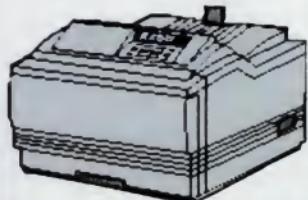
Print

Status

Model



HP LaserJet 4V



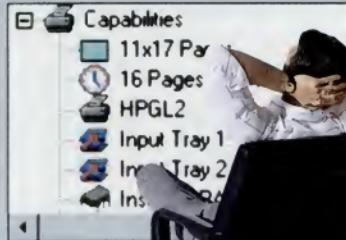
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Vendors to pursue different USB paths

By Brooke Crothers

AS THE UNIVERSAL Serial Bus (USB) standard comes close to completion, Intel Corp., Compaq Computer Corp., and Microsoft Corp. will put their own spins on its implementation.

USB is a 12Mbps serial interface for use with advanced telephony, multimedia, and low-level peripheral devices and applications.

Release 0.995 of the USB specification is now available from Compaq, Intel, and Microsoft; the full-fledged, commercial USB 1.0 will be finished in the coming months, the companies said.

But just as the standard is agreed upon, Intel will part ways with Compaq and Microsoft in implementation.

Compaq and Microsoft announced the Open Host Controller Interface (Open HCI) initiative at the USB conference last week in San Jose, Calif., in conjunction with National Semiconductor Corp.

This initiative will make it easier for hardware vendors to quickly develop products that support USB, the three companies said.

In addition, the Open HCI will be "fully supported in future versions of Microsoft Windows 95 and Windows NT," Microsoft said.

Other companies supporting the

Compaq initiative include Digital Equipment Corp., IBM, VLSI Technology Inc., and Opti Inc.

Meanwhile, Intel has already indicated that it will include support for USB via its own integrated controller, in all its future chip sets.

Intel is calling its initiative the USB Host Controller Interface (UHCI). It will be made widely available to the industry development of USB products, said Jim Pappas, the manager overseeing USB at Intel's Architectural Labs.

Intel's dominance in the chip set and motherboard businesses gives it tremendous power to drive standards into the market, said Michael Slater, publisher of the Sebastopol, Calif.-based *Microprocessor Report*.

Support for USB in the form of drivers for operating systems such as Windows 95 will come with USB products when they are shipped, the companies said.

Prototypes of USB products are expected in the fourth quarter of this year, and commercial production of USB products is expected to begin in the second quarter of 1996.

Microsoft gave examples last week of high-bandwidth interactive banking and information retrieval applications and simultaneous real-time multimedia applications that USB will allow.

Legato announces alliances

By Mark Leon

IN AN EFFORT to enhance the distributed functionality of its storage management software, Legato Systems Inc. has announced alliances with a series of systems management and application vendors.

New partners include Tivoli Sys-

tems Inc., SAP America Inc., Oracle Corp., and Imagery Software Inc.

Legato and Tivoli are de-

veloping a module that will allow users to manage Legato's backup application, called NetWorker, from a Tivoli Management Environment (TME) console.

Tivoli will deliver a \$9,000-per-

server NetWorker module by year's end. The module will allow users to monitor NetWorker functions from TME consoles. It will work with the standard version of NetWorker.

Legato has also developed with Oracle a backup solution to enable live, automated backups of Oracle databases.

"The goal is to bridge the gap be-

» Oracle's back-

up API will sup-

port tape speeds of 20

37 gigabytes per hour.

Oracle's back-

up API will sup-

port tape speeds of 20

37 gigabytes per hour.

"GroupStore will be integrated into the NetWorker administration console," said Dave Lakness, president of Imagery. "We are also working to make sure it can access the same media libraries and be aware of which volumes are for live data and which are for archiving. Legato should also be able to leverage Kodak's expertise in the CD media market through this agreement."

Pentium, IntelDX4 notebooks

TI targets low end of market with Extensa

By Yvonne L. Lee

AFTER PIONEERING a premium PCI-based Pentium notebook, Texas Instruments Inc. is focusing on the low end of the market with a line of modular notebooks geared toward price-conscious buyers.

TI's Extensa line, introduced last week, includes two 75-MHz IntelDX4-based configurations and three models that use the 75-MHz Pentium.

The Extensa line starts at \$1,799 and rounds out the company's product offerings; the TravelMate series is aimed at the performance sector, the company said.

All the computers have a modular floppy drive bay that makes it possible for users to replace the floppy drive with a lithium ion battery or an additional Type III PC Card (formerly PCMCIA) slot. The Pentium-based systems can also replace the floppy drive with a CD-ROM drive, and two configurations ship with

both a floppy drive and a dual-speed CD-ROM drive.

The notebooks will support both nickel metal hydride and lithium ion batteries.

Both a floppy drive and a dual-speed CD-ROM drive.

The notebooks will support both nickel metal hydride and lithium ion batteries.

and a 340MB hard drive. The notebook will support as much as 32MB of RAM and drives with a capacity of as much as 810MB. The \$1,799 model 450 comes with a 10.4-inch passive matrix color display; the \$2,399 450T features a 9.5-inch active matrix color screen.

The Pentium-based Model 550 notebooks ship with a 524MB hard drive and 8MB of RAM. These computers will support 40MB of RAM and 1.2-gigabyte hard disk drives.

The model 550 has a 10.4-inch passive matrix color screen.

The \$2,999 550CD uses the same screen and adds the CD-ROM drive.

The \$3,599 550CDT offers

the CD-ROM drive and a 10.4-inch active matrix color display.

The 450 is shipping now. The 550 models are scheduled to ship at the end of the month.

TI POSITIONING Extensa as an entry-level notebook.

The DX4-based Extensa 450 notebooks ship with 4MB of RAM



Sniffer broadens network support

By Mark Leon

NETWORK GENERAL CORP. this week will announce enhancements to Sniffer, its network analyzer, that will give managers a more complete view of network traffic.

The company has also announced a new Unix remote monitoring (RMON) product and the acquisition of Aim Technology Inc., a Unix systems management vendor.

The enhancements to Sniffer to be delivered this year will enable users to monitor Fast Ethernet, Asynchronous Transfer Mode (ATM), and ISDN networks.

The Fast Ethernet functionality will be available in November and will require a 100Mbps adapter card for the portable PC that runs Sniffer. Users will be able to monitor 100Mbps Ethernet traffic to monitor network devices and servers.

"100 meg Ethernet is here to stay, and it's definitely in our future plans," said Sniffer user Joe O'Rourke, senior data network analyst at Coulter Corp., a Miami medical equipment manufacturer.

In December, Network General will offer ISDN and ATM capabilities in Sniffer.

Before that, in the middle of this month, Network General will ship an RMON product called Foundation Manager.

Like Sniffer, Foundation Manager's hardware probe is a PC running agent software, which transmits RMON data to a Unix console.

"The Distributed Sniffer is more powerful, but it's a proprietary solution, and Network General is covering the standards side of the market with the RMON product," said beta user Stephen Tribley, consulting team leader with The Future Network.

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with RMON."

The purchase of Aim Technology gives Network General an entry into Unix systems management. Aim, in Santa Clara, Calif., makes SharpShooter, a client/server system administration product for Unix that monitors performance primarily on network servers. "Our view is to take advantage of each other's technology," said Jim Geers, president of Aim.

Cisco buys Internet Junction

By Luc Hatlestad

CISCO SYSTEMS INC. has entered the Internet connectivity software arena with the acquisition last week of software developer Internet Junction Inc.

Internet Junction makes PassPort, Internet gateway software that connects multiple PC users on NetWare LANs to the Internet. Designed for small and medium-size workgroups, PassPort enables customers to route Internet applications without having to install a TCP/IP stack on every desktop.

Cisco plans to integrate functions of PassPort into its Internetwork Operating System to enable users to offer Internet access capabilities across enterprise networks without taxing network server resources. Cisco already offers Internet con-

nnectivity via its 7000, 4000, 2500, and 1000 series routers.

The transaction was valued at \$5.5 million. Under the terms of the deal, Internet Junction's employees and product line will be incorporated into Cisco's Business Development and Access Business Units groups.

A new PassPort user said he was impressed with how easy the product is to install and use.

"I was absolutely amazed," said Chad Lancour, IS director for Cleary, Gull, Ryland and McDevitt, a brokerage firm in Milwaukee. "Within 15 minutes of talking to Internet Junction, I'd downloaded the software from their Home page and was connected to the Internet. Hopefully, Cisco will give them a treasure chest to work with."



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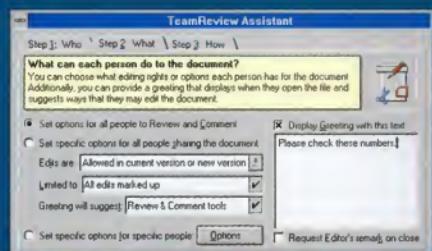
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MILLENNIA PUBLISHING ASSIGNS LAUNCH OF NEW TEEN ~~LITERATURE~~ TO SASSO SKIFFINGTON

Series

VICE PRESIDENT

PORTLAND...Millennia Publishing of Springfield has assigned the launch of its new Series ~~of~~ teen novels "The Carlin Twins" to Sasso Skiffington Advertising, Inc., of Portland according to Sarah Davis, Millennia's VP of Marketing. The account was assigned without a review. Billings are yet to be determined.

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"The Carlin Twins" is a series of 12 novels written by famed mystery writer Jason Geddis, author of such titles as "Mystery on East Fourth Street" and "The Good, The Bad and The O.K." Geddis, a professor of English at Saint Ann's University, was nominated for the Youth Writer's Guild Author of the Decade Award in 1990.

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Sasso Skiffington will create TV, radio and transit advertising to support the launch. The :30 television commercial which will kick off the launch, directed by Mike Piro of Monument Films, is being ~~debuted~~ debited at the Spectacle Show in Dallas in February. Creative credits belong to Executive Creative Director Chris Poulin, Copywriter Kate Carr and Art Director Steve Gibbons.

Sasso Skiffington Advertising, Inc., with offices in Portland and New York, was established in 1979, employs ~~100~~ people and reported billings of \$122 million in 1994.

105

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Want this confidential?

Continued from page 1

longer practical.

"There will be NT's microkernel-based architecture, and there will be Windows 95's architecture, and that's not going to change any time soon," said Mike Conte, group product manager in Microsoft's Personal Systems division.

This road map comes as a surprise to many Microsoft observers.

"This is definitely a change," said Jesse Berst, editor of the *Windows Watcher* newsletter, in Redmond, Wash. "It makes sense now; before it didn't."

The two product streams will not be completely divorced. Microsoft officials refer to Cairo both as a specific NT upgrade and as a set of technologies such as the Object File System and Network OLE.

Microsoft will borrow some of these technologies from Cairo for use in future upgrades of the Windows 95 product line, code-named Nashville and Memphis.

But this plan still leaves it up to IS managers to decide whether to migrate to Windows 95 or to NT, which will be updated with many of the features of Win95 in the first half of 1996.

Netscape

Continued from page 1

"If I had link management tomorrow, I'd be the happiest man alive," said Sean Kane, information systems developer at the U.S. Postal Service, in Washington. "If we have to reorganize [our Web site], we have to make sure all of our links are updated."

Other users concurred.

"I try to avoid making changes [to our Web site]. It's a hassle to reorganize," said Tim Zink, network architect at Boehringer Mannheim, in Indianapolis.

Netscape LiveWorks also verifies links to external Web sites, flagging links to inaccessible documents and servers so they can be deleted.

Also included with Netscape LiveWorks is a scripting language

Expected to be called NT 3.6, this update will add the Windows 95 user interface and a number of client features, such as the Universal Inbox and Microsoft Network client. (See "NT, Win95: What's the diff?" July 24, page 1.)

Microsoft hopes the road will be smoothed by the widespread use of the Win32 API, which makes it possible to develop applications that run on both NT and Win95.

But, although Win95 applications will run on NT, applications developed to take advantage of NT may not run on Win95, said Collins Hemingway, director of industry marketing for Microsoft's Business

Systems division.

For some 15 sites, moving to a more robust NT platform that is the foundation on which Microsoft will build Cairo makes more sense than moving to a Windows 95 platform that only borrows from Cairo.

"Once they do the refresh of NT with the Windows 95 shell, and once I have the hardware, I'm going straight to NT — that's a no-brainer for me," said Leonard Steinbach, vice president for information technologies at the National League for Nursing, in New York.

Other managers said they'll move to Windows 95 now, even though they know that Cairo is

the eventual destination.

"Windows 95 is the stepping stone to 32-bit applications and is a substantial improvement on Windows 3.1," said Doug Greenleaf, the acting CIO at Deloitte and Touche, in Nashville, Tenn., a company with more than 35,000 PCs worldwide. "But in five years we'll be using Cairo across the board."

"The point of Windows 95 was to give people a reason to begin their migration to Cairo," added Brisco Stephens, advanced scientific IS coordinator for science and engineering at NASA, in Huntsville, Ala. "The only people who will want Windows 95 in five years will be the home users."

According to current Microsoft projections, Cairo is due to ship in the second half of 1996.

It will provide users with an advanced distributed computing architecture that includes an Object File System, a Global Directory, and remote activation of applications, according to Microsoft officials.

Network OLE may be ready in time for inclusion in NT 3.6,

but otherwise it will go into Cairo, according to Megan Blas, Windows NT lead product manager.

Probably in the same time frame, Microsoft will ship a version of Windows 95 code-named Nashville, which will include some of Cairo's object technology, according to sources.

Nashville will also include features that Microsoft did not have time to put into Windows 95, said Rogers Weed, Windows 95 project manager.

The next major iteration of Windows after that is code-named Memphis.

Little is known about the product except that it will probably support new chip technologies, including the 64-bit Very Long Instruction Word (VLW) processors being developed by Intel Corp. and Hewlett-Packard Co. (See "Memphis: VLW future for Intel, Microsoft," Jan. 30, page 1.)

But many IS managers said they will have already chosen the road to Cairo by the time Memphis ships.

"[Cairo] is the OS that Microsoft is very obviously aiming at enterprises, and it is the path to the future of distributed computing," Steinbach said.

Chris Jones contributed to this report.

Microsoft's OS map has two roads

Microsoft Corp. hasn't set dates for Nashville and Memphis, but Chairman Bill Gates has promised a major upgrade of Windows 95 in three years. And sources say that Nashville will borrow Object File System technologies from Cairo, which is due in the second half of 1996.



based on Java, a programming language developed by Sun Microsystems Inc. that is intended for creating interactive multimedia applications on-line.

Java, alpha versions of which have been available on Sun's Home page since last May, enables developers to create applets that add dynamic content to a Web site.

Netscape next week will also announce the availability of a beta version of Netscape Navigator 2.0, which will include support for Java applets and offer an API for adding viewers for media types such as Macromedia Director presentations and Portable Document Format documents.

Java support in Netscape will open up new possibilities for Web-based groupware applications on corporate LANs, said Mike Prince, director of information systems at Burlington Coat Factory Inc.,

based in Burlington, N.J.

"I'm happy to see Netscape embrace Java," Prince said. "It allows you to disseminate programs the same way you disseminate documents."

Netscape's release of a Java browser is expected to speed Java's acceptance as a development tool, analysts said. But Java will face competition from other tools, such as Next Inc.'s WebObjects and Microsoft Corp.'s Blackbird.

Netscape will also announce the fourth-quarter availability of Netscape Navigator Gold, a \$79 Windows, Macintosh, and X Windows WYSIWYG HTML editor that will be integrated into Netscape Navigator 2.0, sources said.

Unlike most HTML editors, which require toggling back and forth between a browser and an editor, Netscape Navigator Gold will combine them into one package.

By Deborah DeVoe

DIGITAL EQUIPMENT CORP. last week created a Connectivity Software Business Unit that will be responsible for the company's Internet and network software products.

The new unit, which functions alongside existing business units responsible for platform and client/server software, will develop software in seven areas under the heading of internetworking software and enterprise client/server software.

The new internetworking software will focus on secure Internet connectivity, remote and mobile connectivity, universal communications, and collaboration software. Digital has already begun to roll out these new products, with the

July shipment of Digital Firewall for Unix and the planned October release of the remote-access software Modularizer for Windows.

Other products due to ship by the end of the year include software for creating workgroup forums and for Internet-based forums, and a tuning product for Unix and Windows NT to provide secure connections through firewalls.

Future products will include Firewall for NT; Internet Mail Server for Internet messaging and Directory Server for managing Internet resources; bridging products for communication over the fire walls and tunnels; and Insta-Serv for secure Internet connections.

The client/server side of this unit is responsible for existing products, including Polycenter NetView and ManageWorks for systems management; Mailbus 400 and Directory Services for enterprise messaging, and ObjectBroker.

New products due from this group will include Polycenter NetView for NT, due to ship in mid-October, and ObjectBroker for NT, due by year's end. Simple Network Management Protocol capabilities will be added to Mailbus 400 in the first half of 1996, and NT versions of the messaging products are due within 12 months, officials said.

Warp

Continued from page 1

that have standardized on Windows clients will no longer have to deploy a separate OS/2 client to manage an OS/2 server.

Windows 95 currently is supported on LAN Server, but not as an administrative tool. The new client will be capable of administering

groups of mixed-platform clients, including Windows 3.x, Windows 95, DOS, and OS/2 Warp clients.

Functions that can be performed include setting user disk limits; setting aliases, which enable users to access server resources without knowing specific server names; and setting group privileges to network resources, according to sources familiar with IBM plans.

IBM's plan is a requirement if the vendor wants to compete in the

PC LAN operating system market, analysts said.

"In order for IBM to make a real market on the server side ... they have to round up all the clients," said Bob Sakakemyer, analyst at Aberdeen Group Inc., in Boston.

Users said the IBM decision represents an acceptance of Microsoft Corp.'s dominance on the desktop.

"It's a good move," said C.J. Airlall, systems analyst at Cincinnati Bell

Information Systems, an OS/2 LAN Server user site. "How can you avoid [Windows 95]? It's not as robust as Warp Connect, but unfortunately everybody is marching to Microsoft."

Another OS/2 Warp user, Don Degner, computer process control engineer at paper manufacturer Gaylord Container Corp., in Pine Bluff, Ark., said IBM is "just acknowledging the forces of the market."

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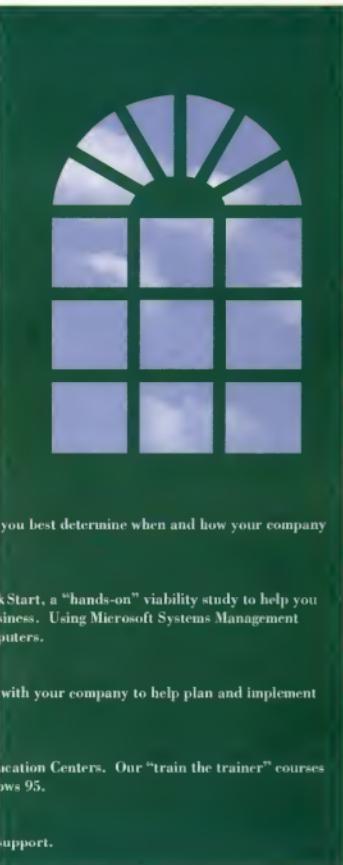
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Software Publishing Corp. is shipping Harvard ChartXL 2.0 for Windows, a graphing application with more than 300 two- and three-dimensional chart types to create spreadsheets and charts. The company is also shipping ASAP, a low-end program for generating reports and presentations. ASAP features intelligent formatting for automatically designing presentation layouts. Harvard ChartXL for Windows 95, Windows NT, and Windows 3.1 is priced at \$149. Users of Harvard ChartXL 1.0, Microsoft Office, and Lotus 1-2-3 can upgrade for \$79. ASAP for Win95 and Windows 3.1 costs \$99. (800) 336-8360.

ANNOUNCED

QUARTERDECK CORP. plans to begin shipping its line of Windows 95 utilities this month, including MagnaRAM for memory compression and Clean Sweep, a 32-bit uninstaller; WinProbe, a diagnostic utility, and the QEMM memory manager for Win95 are slated to ship in December. The company has not set prices. (310) 392-9851.

IQ SOFTWARE CORP. next month will release a data query tool and report writer called SmartObjects that will let users assemble reports and integrate data from multiple data sources through reusable objects. SmartObjects will cost \$500 for a Personal Edition; a multiuser Enterprise Edition will cost \$695. Both require a \$995 Administrator's Edition for setting up database queries. (404) 446-8880.

DROPPED

Japan's Ministry of International Trade and Industry agreed last week to drop a software quality assurance proposal that U.S. industry groups had attacked as a potential trade barrier. If approved, the Japan Accreditation Board for Quality System Registration would have used a variant of the ISO 9000 quality assurance standard to accredit the production processes used to make any software that would enter the Japanese market.

SOFTWARE**Developers welcome unifying C++ spec**

■ New standard to allow linking of tools and libraries from multiple vendors

By Martin LaMonica

DEVELOPERS ARE HAILING an upcoming C++ language standard as the breakthrough that will let them link tools and class libraries from different vendors, thereby simplifying C++ development and broadening the talent pool of C++ programmers.

A draft of the C++ standard specification, issued this summer and already granted preliminary approval by the American National Standards Institute (ANSI) and the Europe-based International Standards Organization (ISO), specifies an universal set of features and language extensions for all versions of the C++ language. The ink is expected to dry on the final specification by late next year.

But development tool vendors

such as Borland International Inc. and Microsoft Corp. are already hastening to adhere to the standard by integrating features defined by the specification — such as namespaces for facilitating team development and improved automatic type conversion — into their current releases. Tools compliant with the draft of the specification will begin shipping from several major vendors as early as this fall.

The release of these tools, said corporate developers last week, will mean programmers will be able to take a portion of source code written for HP-UX, for example, and port it to a Windows NT compiler and reuse it. This is a significant change from the current generation

of tools that produce C++ applications inextricably tied to the compiler they were written with and the hardware they were designed for.

"With this new standard, a professional programmer can move to another company and fit into [using] a new compiler and fit into [using] a new class library without having to learn how to code from the ground up," said Brian Coryell, data processing manager at accounting firm PTS&J, in Arkansas City, Kan.

Standards-compliant tools will also allow users to mix and match their class libraries and objects instead of having to use compiler-specific prewritten pieces of code, said Dan Whitaker, executive vice president of class library vendor

Rogue Wave Software Inc., in Corvallis, Ore.

This is because standards-compliant C++ development tools will also include a standard library, which ensures interoperability with third-party libraries, he added.

Developers also lauded the fact that the C++ standard takes advantage of several recently introduced compiler technologies instead of adopting a lowest-common-denominator approach.

"I can pick up new features in a compiler, like templates and string handling, right away rather than having to wait to see if other vendors will adopt it because the standard was fuzzy," said Michel Giroux, developer at mainframe vendor Bull HN Information Systems Inc., in Phoenix.

NEWS ANALYSIS**Mercury helps root out client/server inefficiencies**

By Martin LaMonica

MERCURY INTERACTIVE INC. this week is delivering a new brand of testing tools designed to improve the efficiency of client/server databases, by letting administrators or developers more closely track client-to-database network traffic.

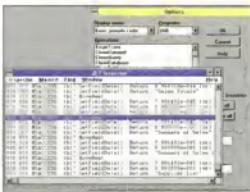
Mercury is delivering the tool in two flavors: a \$495 JetInspector for Microsoft Corp.'s Jet database engine and any other Open Database Connectivity-compliant databases and the \$995 SQLInspector that works with Microsoft SQL Server, Oracle7 Enterprise Server, and all versions of Sybase SQL Server that support the dblib API.

A version for Sybase Inc.'s cLIB API, a superset of dblib introduced for SQL Server System 10, is still in the works.

Both tools monitor how often each client accesses a given database and logs data concerning such activities as connection time for query execution and errors. SQLInspector then lets custom application developers or database administrators spot application inefficiencies that can then be fixed directly in SQL or a fourth-generation language.

Industry analysts agreed that JetInspector and SQLInspector target one of the biggest holes in client/server development.

"In client/server, it's not obvious where the application is spending time, so it's not easy to know that transferring portions of the application to the client or the server will



SQLINSPECTOR AND JETINSPECTOR log database connections for analysis and testing.

improve performance," said Dick Hyman, testing tool analyst at the International Data Corp. research company, in Framingham, Mass. "By focusing on the middleware, it completes the [testing] picture."

Mercury also plans to release additional versions of SQLInspector that will perform the same function for on-line transaction processing monitors such as Novell Inc.'s Tuxedo, the company said.

Mercury, in Sunnyvale, Calif., can be reached at (408) 523-4200.

Windows 95 support**Users confused over Win95 application labeling**

By Ilan Greenberg

SOME VENDORS OF 16-bit Windows software are trying to ride the Windows 95 wave through the potentially confusing use of the word "support" on their packaging and advertising, said users and analysts last week.

Virtually all 16-bit software designed for Windows 3.x will run under Windows 95, but only 32-bit applications written specifically for Windows 95 offer improved performance and take advantage of new features, such as long file names.

In part to help users spot native Windows 95 applications, Microsoft Corp. initiated a certification program several months ago that lets applications that meet a list of Windows 95 criteria display the "Designed for Windows 95" logo.

But some 16-bit software companies are advertising that their software supports Windows 95, meaning that it simply runs on Windows 95, and some users are having trouble distinguishing the real native Windows 95 packages.

IS managers know the difference between 16- and 32-bit software, but some corporate users said last week that the vendors' practice is making it difficult to judge how many 32-bit Windows applica-

tions are available.

"I'm holding off on getting Windows 95 precisely because I'm confused about which applications will give me an advantage with the new operating system," said Jane Walsh, member services and outreach manager at Seavanna Natural Foods, in Atlanta.

Microsoft officials acknowledge that there is confusion, but urge users to look for the Windows 95 logo.

"There are certainly people who are claiming to [support Windows 95] who don't. The whole reason we created the logo program is to legitimize real Windows 95 applications," said Debra Celis, the Microsoft product manager who is in charge of the logo program.

Analysts said the problem distinguishes the real question that IS managers need to answer: How many Windows 95 applications are there?

"What's behind [all this] is one of the biggest marketing ploys on earth and everyone wants to cash in," said Judith Hurwitz, president of Hurwitz Consulting Group Inc., in Watertown, Mass. "There will be misinformation. It shows there just aren't that many true 32-bit Windows 95 applications out there yet."



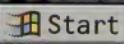
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Now when people get stuck and can't figure out how to do something, they ask the computer for help and it answers.

It's called the Answer Wizard. Type in a question in plain English. "How do I get the page to print sideways?" By accessing more than 12,000 help topics, the Answer Wizard will actually show the user how to do it. Questions that once frustrated

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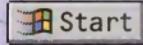


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The advanced multitasking, simplified user interface, and 32-bit performance of the Windows 95 operating system make Microsoft Office easier and faster to use than ever. Office is also designed to make the most of advanced capabilities like multi-threading and the Windows 95 Briefcase. Microsoft Access Briefcase Replication lets users take a copy of important data on the road with them. Lets them type in new information offline and then automatically incorporate it upon return with no loss of data integrity. For more information on Microsoft Office, how it works with Windows 95, and how it could work with your company, call 800-607-6872, Dept. F3W. You'll receive an Evaluation and Migration Planning CD that includes a product demo, technical information on all of the applications, a deployment planning guide, and tools for managing migration.





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PC Magazine, April 25, 1995



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		Graphics WinMark	CPU Mark	DOS Mark
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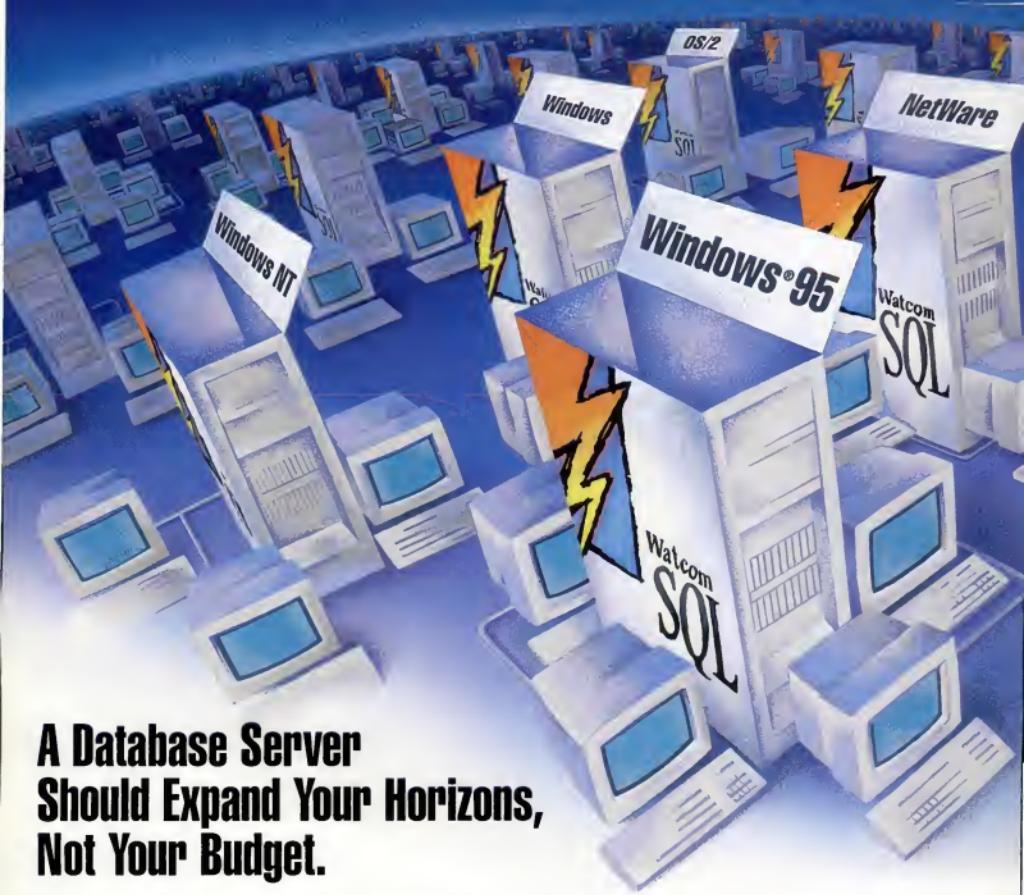
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PowerCerv rolls out Intergy C/S accounting modules

ANOTHER CONTENDER entered the already crowded arena of client/server accounting applications with last month's release of a new suite of integrated accounting modules from PowerCerv Corp.

Called Intergy, the family of modules includes general ledger, accounts payable, ac-

counts receivable, order entry, fixed assets, inventory, payroll, requisitions and purchasing, and project accounting applications. Intergy is PowerCerv's first accounting software suite. Company officials said they hope to make inroads against competitors such as Great Plains Software Inc. and Platinum Software

Corp. by focusing on features such as tools to help managers project supply and demand.

Some users, however, said PowerCerv's real advantage is pricing.

"It got down to PowerCerv and Platinum, and the price difference was substantial. Now we're really happy that it's really stable under

Windows NT," said Carrie Casanas, controller at Starwave Corp., an Internet software vendor based in Seattle.

Pricing for Intergy ranges from \$20,000 to \$100,000 per module. Platinum pricing, by contrast, starts at \$50,000 per module for its SQL NT accounting family.

Intergy clients support Windows 3.x, Windows NT, and Win95 and NT, OS/2, or Unix servers. Intergy supports database servers from Oracle Corp., Sybase Inc., Informix Software Inc., and Microsoft Corp.

PowerCerv, in Tampa, Fla., can be contacted at (813) 226-2378.

—Ilan Greenberg

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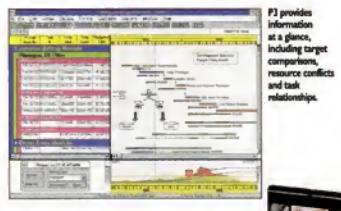
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XEROX CORP.'S XSoft division last week caught up with its hardware partners who have started preloading Windows 95 by delivering a Windows 95 version of the TabWorks document manager bundled with all desktop PCs from Compaq Computer Corp. and NEC Technologies Inc.'s PowerMate line.

TabWorks uses a three-ring notebook metaphor to help users find, launch and file their documents and applications. Users do not have to know where a document resides in the directory; nor which application was used to create the document but can launch documents directly from notebook pages.

Version 2.0, available in a 32-bit version for Windows 95 or in a 16-bit upgrade for Windows 3.x, adds the capability to search docu-



XSOFT'S TABWORKS organizes the workspace into a three-ring binder.

ments for specific words, dates, or associated applications; a graphical view of all notebooks in a library called the Bookshelf; and the capability to assign a different password to each notebook.

"The speed has been improved, and I like the text search, password protection, and the ability to customize the appearance of the notebooks," said Doug Smith, president of Smith Management Inc., a software developer and consultancy in Virginia Beach, Va.

TabWorks 2.0 can also be purchased for \$49 direct from Compaq or XSoft.

XSoft, in Palo Alto, Calif., can be reached at (800) 428-2995.

—Jason Pontin

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WINDOW MANAGER • BRIAN LIVINGSTON

Windows 95's Find function holds a lot of wild card secrets

WINDOWS 95 has a powerful new Find feature that far surpasses the weak File Search engine in the Windows 3.1 File Manager.

But, amazingly enough, the most attractive aspect of Find — its new wild card features for selecting file names — isn't documented anywhere in the Windows 95 manuals or even in on-line help.

Most PC users are familiar with using wild cards to find file names. An asterisk means "any number of characters at the end of this file name." For example, DIR RUN* finds RUNS, RUNNER, and so on. A question mark means "a single character here." DIR R?N finds RUN, RAN, and so on.

The Windows 95 Find feature greatly

expands this use of wild cards.

First of all, an asterisk can now appear at the beginning as well as the end of a string. In Windows 95, a query on *.* will find any files or folders with the letter "z" anywhere in their extensions — for example, README.ZIP, README.XYZ, and so on.

Placing an asterisk at the beginning of a string, without any other wild cards, now has the effect of searching for the string only at the end of a name (excluding extensions). Searching for *ABC now matches DABC and DEABC but not ABCD or FILE.ABC.

The question mark has gained a new function as well. Used by itself at the beginning of a string, it means "one or more characters" but does not limit the search to the end of a file name. For instance, ?C would find ABCDE as well as ABC.

And bracketing a search string with two question marks will find the string anywhere in any name or extension, not including the first letter of the name and the last letter of the extension.

For instance, ?A? matches BAC.TXT and CCC.ABC but not ABC.TXT or A.CBA.

Find files in Win95

This ...	Finds this ...	DOS
abc	abc in files and folders	N
*abc	anywhere in name or extension	Y
*abc	abc in files (not folders) at the end of a name (excluding extension)	N
.	anywhere in extension	Y
	of files and folders	
?a?	a in second-to-last position in the name (but not the extension) of files and folders	N
?ab	ab anywhere in name or extension of files or folders, at least one letter after the first letter of the name	N
?a?	a anywhere in name or extension of files or folders, but not the first letter of name or the last letter of extension	N
?a?*	Three-letter file or folder name with a in second position	Y

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Unfortunately, the person at Microsoft Corp. who programmed these wild cards into the Find feature didn't communicate with the person developing the new DOS 7 that comes with Windows 95.

Therefore, even in a DOS session under Windows 95, the command DIR "A" doesn't work. Nor does DIR ?C match ABCDE.

Given the potential for Windows 95's new Find wild cards, I have documented their uses for the first time anywhere (except in *Windows 95 Secrets*) in the table above.

To try these features for yourself, click the Start button in Windows 95, then click Find, then Files or Folders. The new Find dialog box offers options to search by date and size, and so on, in addition to its new wild card features. I've indicated in the table whether Win95's DOS 7.0 supports a particular wild card use.

Brian Livingston is the coauthor of the new *Windows 95 Secrets* and author of three other Windows books (all IDG Books). Send tips to brian_livingston@infoworld.com; or fax: (206) 282-1248.



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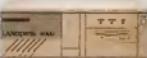
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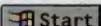
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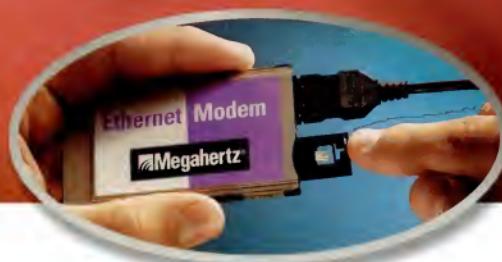
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Linking Your Worlds

Hevelt-Packard Co. has cut the prices of its 486-based OmniBook 600 and 4000 portable lines. The 3.8-pound OmniBook 600 series now starts at \$2,080 for a model equipped with a 50-MHz 486DX2 and a 170MB hard drive. The full-size OmniBook 4000 series, also based on the 486 architecture, now has an estimated street price starting at \$2,190, the company said. (800) 443-1254.

ANNOUNCED

To avoid confusion with Sun Microsystems Inc., Santa Clara, Calif.-based solid state memory designer SUNDISK CORP. recently changed its name to SanDisk Corp.

SHIPPING

ADvanced Logic Research INC. is adding two new models to its Optima line of desktop PCs. The new 120-MHz and 133-MHz Pentium systems feature 8MB of RAM, a 256KB Level 2 cache, one 32-bit PCI slot, two 16-bit ISA slots, and one shared PCI/ISA slot in a slimline chassis. A system with a 120-MHz Pentium processor, 16MB of RAM, and a 1-gigabyte (GB) hard drive is priced at \$2,559. A 133-MHz Pentium system with 16MB of RAM, a 1.6GB hard drive, and a CD-ROM drive is priced at \$3,099. Both models include the choice of Windows 95 or Windows for Workgroups 3.11. (714) 581-6770.

An Ultra SCSI adapter that supports data transfer rates as high as 40MBps has been introduced by ADAPTEC INC. The high-speed AHA-2940 controller can support as many as 15 devices on a single channel and will have a suggested price of \$375, the same as that of Adaptec's current Fast and Wide SCSI-2 board, the company said. (Quantum Corp. already offers 2GB and 4GB drives that take advantage of Ultra SCSI's capability, with a sustained data transfer rate of about 15MBps.) The controller is also backward compatible with existing 5CSI devices, the company said. (800) 934-2766.

By Tom Quinlan

ZENITH DATA SYSTEMS CORP. intends to enter the Unix-based application server market this week when it introduces two server lines using the PowerPC processor.

The systems — the single-processor Z-Power line and the multiprocessor Escala models — are similar to systems announced last year by Zenith's parent company, Groupe Bull.

The Z-Power systems are compliant with the PowerPC Reference Platform (PREP) architecture and are designed primarily to run IBM's AIX 4.1 OS. The systems are also capable of running Windows NT 3.51 and will be capable of running other PREP-compliant OSes at the OSes ship, the company said.

The Z-Power line features a single 100-MHz 604 processor, a minimum of 16MB of RAM, the PCI/

ISA bus architecture, SCSI-2, built-in support for Error Detection and Correction memory, and hot-pluggable disk drives.

Storage ranges from 1 gigabyte (GB) to 6GB, and the system is available in a desktop or a minitower configuration.

System prices for the Z-Power line will start at \$4,219.

Zenith's multiprocessor Escala models also come in two configurations: a minitower model that can support from one to four 100-MHz PowerPC 601 processors and a desktop model that accommodates from two to eight of the chips.

Users can upgrade the highly scalable systems to 604 and 620 processors as those chips become more widely available.

The systems can support a memory-to-CPU data transfer rate of 1.6Gbps using the same technology

introduced by Groupe Bull with its PowerScale systems, the company said. As a result, the systems are more scalable than most symmetric multiprocessing-based systems, company officials said, with the Escala models offering the processing power of six uniprocessor systems.

The Escala systems come with the same basic features as the Z-Power models, with the exception of a Micro Channel Architecture bus. However, the Escala series is not PREP-compliant and will only run AIX.

The minitower model supports as much as 512MB of RAM and 13GB of storage. The

desktop model can accommodate 2GB of RAM and 36GB of storage. Prices start at \$15,800.

Zenith, in Buffalo Grove, Ill., can be reached at (800) 533-0331.



ZENITH IS ENTERING the PowerPC market with uni- and multiprocessor server designs.

IBM adds to its melange of server offerings with 7596

By Ed Scannell

ALTHOUGH SOME USERS and analysts have suggested that IBM's new 7596 Cross Platform Server could further blur IBM's complex assortment of server offerings, company officials believe the new product will simplify user choices.

By adding a VAX or RS/6000 hardware module, or both, to the 133-MHz Pentium-based 7596, users can create a customized, multiprocessor server that enables a networked workstation to access VAX, AIX, OS/2, and Windows applications simultaneously. (See "Servers configured for IBM, Digital processors," Sept. 4, page 12.)

The 7596 also gives corporate IS shops the flexibility to either migrate their proprietary Digital Equipment Corp. environments to an open, less costly PC-based environment or more conveniently manage multiple environments from a single system.

"At first [the 7596] looks like they couldn't make up their mind how to combine server solutions, and [IBM's] just throwing technology at the problem," said John Dunkle, president of Workgroup Strategic Services Inc., a consultancy in Portsmouth, N.H. "But if they get the positioning message clear, it could be an interesting solution."

IBM officials admitted their maze of server solutions makes it difficult for users to smoothly move from one server to another but said the 7596 offers users a road map.

"This product gives them a vision

of how to go from where they are to a client/server environment and take advantage of more current technologies. That's the value we will sell with this product," said J.R. Nelson, a solutions executive with IBM's manufacturing industry solutions unit.

But some observers thought the product could cannibalize servers

produced by other IBM divisions. "Over the years, IBM has often proved to be its own best competition by not more clearly positioning products across its divisions," said John Handly, senior technical consultant with a large utility in Gaithersburg, Md.

Although he declined to discuss IBM's product plans or commit-

ment, Nelson said the 7596 could integrate other IBM processors, such as the AS/400, or IBM's microprocessor-based S390 adapter card, which lets PC-based servers run mainframe applications.

"But at this point we don't have any plans to do so," Nelson said.

IBM, in Armonk, N.Y., can be reached at (800) 426-7636.

NetApp F330 targets high end of NFS market

By Deborah DeVoe

NETWORK APPLIANCE CORP. is looking to move into the higher end of the Network File System (NFS) server market with the release of its NetApp F330.

Announced last week, the F330 features the PCI bus architecture, a 90-MHz Pentium chip, and a total storage capacity of 80 gigabytes (GB). Network Appliance is positioning the server for large departments and the enterprise while targeting its original FASever at small workgroups and departments.



NETWORK APPLIANCE is moving up the enterprise with its F330 NFS server.

"[The F330] has greater capacity and increased throughput," said Paul Canning, vice president of network services at NationsBanc-CRT, in Chicago, which is testing an F330 and has about 30 FASevers.

"While I don't see an across-the-board migration, we're looking closely at [the server] for some critical data needs," Canning said.

The F330 is capable of delivering 1,310 NFS operations per second and offers a high availability rate of 99.97 percent, officials said.

The server integrates Network Appliance's Write Anywhere File Layout software with RAID Level 4 technology to speed writing to the disk. The F330 supports NFS 2.0 and 3.0.

The NetApp F330 supports as many as nine PCI slots, 17 10Base-T and three 100Base-T Ethernet

connections, and four FDDI interfaces.

The system can support as much as 256MB of RAM and comes with 512KB of Level 2 cache, two serial ports, on-board Fast SCSI, and on-board 10/100Base-T Ethernet.

Available now, the NetApp F330 ranges in price from \$47,000 to \$150,000.

A typical configuration with 64MB of RAM, one 4GB parity drive, six 4GB data drives (for 24GB of disk storage), three hot-swappable SCSI channels, and a twisted-pair FDDI controller costs \$63,245. FASever customers can upgrade their systems to the NetApp, Release 3.0, software for \$3,995, or \$1,995 for systems purchased within the past year. Customers in Network Appliance's Extended Service program can receive the upgrade for free. Hardware upgrades to the PCI architecture cost \$29,995.

Network Appliance, in Mountain View, Calif., is at (415) 428-5100.

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HELP DESK • BRETT GLASS

Can't run Windows? Reboot, check data, reload video driver

I made a change to the configuration of a mission-critical Windows machine via the Windows 3.1 Control Panel. As I exited, a dialog box warned me that the swap file was corrupt and asked if I wanted it to be deleted. I then saw another dialog box that told me I had to leave Windows to complete the changes I had made. I have not been able to run Windows since that time. Instead, I receive a message that says "Error loading vga.drv" and the machine returns to

DOS. I tried to reinstall Windows, and it did not help. What can I do?

Jack Anderson



swap file is corrupt, the situation is more dire than the message suggests. Crucial memory has usually been overwritten — including, potentially, buffers holding data to be written to your disk and information about where to write it. The contents of your hard disks — including files you are not currently using — are in danger. The best way to protect them is to hit Ctrl-Alt-Del twice (or hit the reset switch) and reboot immediately.

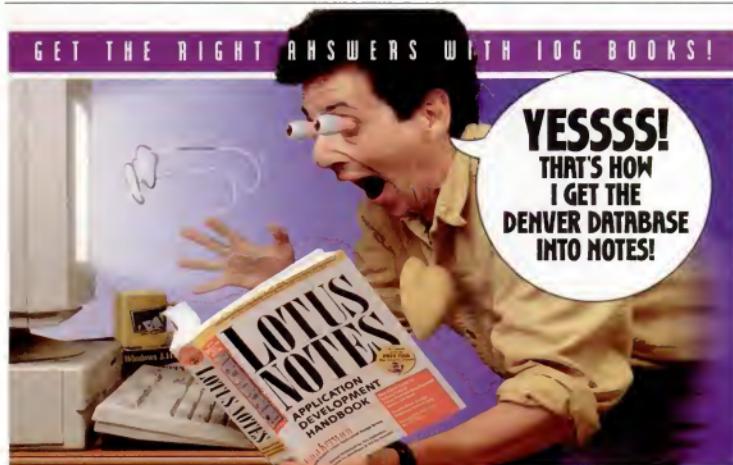
Once you reboot, run SCANDISK or Symantec Corp.'s Norton Disk Doctor to check for damage to your file allocation table and directories. Even if they're OK, you may find that portions of files have been overwritten and data must be recovered from a backup tape.

In your case, it appears likely that one or more Windows driver files, virtual device drivers, or DLLs — perhaps including your video driver — have been corrupted. This will prevent you from starting Windows. Try reloading your video driver from the original disks or restoring it from a backup. Also check WIN.INI and SYSTEM.INI for corrupted lines.

We are interested in moving hard drives and SCSI host adapters between machines. It appears, however, that different cards have different ways of mapping DOS sectors to sectors on the SCSI drive, making it impossible to swap components freely. Is there an industry standard that will let us swap drives freely?

John J. Fendrick

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I am running Windows 3.1 and DOS 6.22. I just acquired a U.S. Robotics 28.8Kbps external modem, but Windows Terminal applet can only go up to 19.2Kbps. Is there a way to run faster?

Michael Thompson

The best cure for aging Windows Terminal is to upgrade to a full-feature communications program. Many are available as shareware (check your favorite on-line service or the Internet), so you can try before you buy. Besides faster baud rates, you'll also get more flexible transport protocols and a wider variety of terminal emulations.

Brett Glass' Help Desk answers business computing questions. Readers can leave queries by calling (800) 227-8365, ext. 702, or by messaging CompuServe at 72267,3673.

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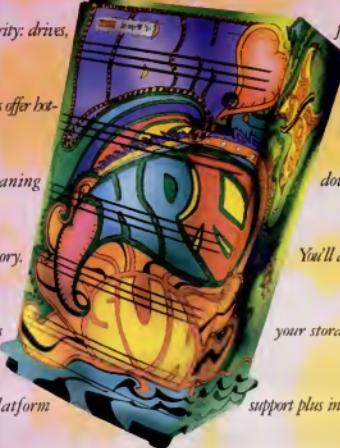
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iRAB

Cabletron boosts capacity of switches

By Luc Hatlestad

Hewlett-Packard Co. this week will announce enhanced versions of its HP AdvanceStack 10Base-T Hub-24 and Hub-48. The hubs can be connected to HP's new AdvanceStack Redundant Power Supply, which protects networks against power failures and unstable connections. The enhanced hubs will be available this month. Prices range from \$1,459 to \$3,119. The Power Supply will be released in December for \$1,749. (800) 533-1333.

FARFALLON COMPUTING INC. this week will add three adapters to its EtherMac product line. The EtherMac PowerBook Adapter, the EtherMac Printer Adapter, and the EtherMac MultiPrinter Adapter are all designed to connect Macintosh devices without available slots to Ethernet. All three components will be available this month. The PowerBook Adapter and the Printer Adapter will cost \$229, and the MultiPrinter Adapter will be priced at \$299. (\$10) 814-5100.

EXABYTE CORP. has announced the bundling of a new 8mm tape drive with backup software from leading vendors. The Exabyte drive is top loading and will write 14 gigabytes of compressed data to tape. It comes with a CD-ROM that contains backup applications from Cheyenne Software Inc., Palindrome Corp., and Arcada Software Inc. Users can get a key to unlock one of the backup applications by calling an 800 number. The EXB-8700 tape drive is available now and is priced at \$2,695. (303) 442-4333.

ASCEND COMMUNICATIONS INC. has announced that it will license its Multilink Protocol Plus (MP+) ISDN specification to other remote-access equipment manufacturers on a no-fee basis. MP+ adds bandwidth-on-demand capabilities to the Multilink Point to Point Protocol, which allows multiple channels to be used in an ISDN line. (800) 621-9578.

CABLETRON SYSTEMS INC. will announce later this month two add-on modules that make use of application-specific integrated circuits (ASICs) to substantially boost the capacity of a single switch.

The single-slot 9E423-Ethernet and 9F426-02 FDDI switch modules are designed to plug in to Cabletron's Multimedia Access Center (MMAC) and MMAC Plus switching systems.

The modules, scheduled to be formally unveiled at NetWorld+Interop in Atlanta later this month, use proprietary Cabletron ASICs. The Ethernet module quadruples the Ethernet port density of Cabletron's MMAC Plus switching hub to 336 ports per chassis; the FDDI module doubles the number of FDDI ports to 28. Both hubs achieve a switching throughput of

about 750,000 packets per second.

"The ASIC makes these much better than the previous MMAC modules," said Michael Howard, president of Infonetix Inc., a networking consultancy in San Jose, Calif. "This will allow people to design denser, faster networks without buying another chassis."

The ASIC's speed and power levels put Cabletron's switch offerings way ahead of other similar products, according to one user.

"It's important to remember that these are Cabletron's second-generation switches," said Michael Smith, head of telecommunications and trading technologies for Credit Suisse USA, a bank in New York. "Most vendors don't even have their first generation [completed] yet."

Another user, at United Airlines, in Elk Grove, Ill., said the ASIC-based modules were invaluable to

his bandwidth-intensive applications. United's air traffic controllers use the modules to monitor weather, flight data, and system changes that affect United's airplanes.

"There's a tremendous amount of data going down the pipe to the controllers, and we're really impressed with [the modules'] performance," said Ken Cieszynski, senior staff engineer for United.

The units offer per-port remote monitoring support that allows users to monitor statistics and manage thresholds and disabling from the port level. The switches can be managed from any SNMP-compliant network management system.

The Ethernet module provides a full-duplex option that allows as much as 480Mbps of bandwidth per module, and the unit offers switch-

ing to the MMAC chassis' 2-gigabit-per-second Internal Network Bus (INB). The INB simultaneously supports packet and Asynchronous Transfer Mode (ATM) cell transport, which preserves customers' investments in their existing LAN equipment while providing a migration path to ATM.

The dual-port FDDI module can be used to connect two external FDDI networks to the INB backbone, and the module has a connection option that lets the MMAC Plus' two internal Flexible Network Buses hook up to the INB.

Cabletron did not announce pricing for the modules, but company officials said the units would ship by the end of the year.

Cabletron, in Rochester, N.H., can be reached at (603) 332-9400.

Crosscomm switches create virtual Ethernet networks

■ Single console can manage devices

By Luc Hatlestad

CROSSCOMM CORP. unveiled last week a pair of switches that connect older Ethernet devices into a switched virtual network that can be managed from a single console.

The Ethernet Managed Switch (ESS) and the ATM Edge Switch (AES) are part of Crosscomm's Clear Path strategy for migration from hub- and router-based networks to Asynchronous Transfer Mode (ATM) networks.

The Clear Path line consists of switches, routers, and hubs that can be plugged in to a single fault-tolerant platform.

That platform features network management capabilities based on the remote monitoring (RMON) protocol that allow users to monitor network activity from a single console.

"Most other boxes are fast, but their management capabilities are lacking," said Tom Bain, a Reston, Va.-based analyst with the Meta Group Inc. "The ability to do RMON analysis of protocol decodes is a pretty slick functionality."

One user credited the Clear Path architecture with giving him a complete network management solution.

"It's such a joy for me to have everything I need — chips, modules, and so on — in one box," said

Pat Craven, senior vice president at W&D Securities, in New York. "I can sit in one place and monitor what's going on all over my network."

The ESS offers capabilities for switched 10Mbps, full duplex, and Fast Ethernet, in addition to the optional ATM connection. The switch divides the LAN, dedicating 10Mbps of bandwidth to each user or segment. The switch also supports as many as 32,000 Media Access Control addresses.

The AES integrates as many as 24 Ethernet switched ports, an ATM port, and an embedded LAN analyzer on one module.

It supports LAN encapsulation under the ATM Forum standard RFC 1483; a later version of the AES will support RFC 1577 Internet Protocol over ATM and LAN emulation.

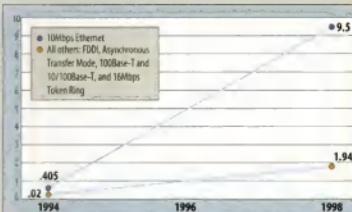
Prices for the ESS, which will be available this month, range from \$11,995 for 16 ports to \$15,995 for a 32-port module with two 10Base-T ports. An ESS module with switched 10Mbps ports will be out early next year.

The AES will be available in November with prices beginning at \$19,995 for the module with 24 10Base-T ports.

Crosscomm, in Marlborough, Mass., can be reached at (508) 481-4660.

10Mbps Ethernet to pull ahead sharply

Annual LAN switch port shipments projections (figures in millions)



SOURCE: INFONETICS RESEARCH INC.

THE WEB HOTLIST

Web sites worth checking out

- 1** **HP's Network City** http://www.hp.com/go/network_city
Hewlett-Packard Co. offers information on its networking products and services. Browse the Support Information area for the latest drivers and software upgrades, or visit the Network City Cafe for shareware.
- 2** **Progress Software** <http://www.progress.com>
Learn about Progress Software Corp.'s application development technology and support services. Available on-line are product catalogs, software demonstrations, white papers, and a toolkit for connecting databases to the Web.
- 3** **RSA Data Security Inc.** <http://www.rsa.com>
Get information on RSA's software encryption and authorization technology. Download a free evaluation copy of RSA Secure for Windows cryptographic software, or read the Cryptobyte newsletter.
- 4** **White Pine Software** <http://www.wpine.com>
Learn about White Pine's connectivity software solutions for distributed, multi-platform environments. Download a demonstration version of CU-SeeMe Internet desktop videoconferencing software, jointly developed with Cornell University.
- 5** **Accent Software International** <http://www.accentsoft.com>
Accent uses a postage stamp motif to present information on its LanguageWare line of multilingual word processors. Learn about Accent's Internet products or visit the on-line Help Desk.

Send your URL suggestions to: james_battey@infoworld.com

Lotus VideoNotes to support more formats, video servers

By Jessica Davis

LOTUS DEVELOPMENT CORP. has announced a new version of its VideoNotes companion product to Notes that enables users to store and play back additional video file formats in the Notes environment.

VideoNotes Version 1.1, expands video file support to include Apple Computer Inc.'s QuickTime for Windows and MPEG. Version 1.0, released in January, only supported Windows AVI files.

The new version of VideoNotes is available for Windows NT Server as well as OS/2. Another new feature allows users to publish information from CD-ROMs on the network. Version 1.1 also supports more video servers. In addition to supporting Novell Inc.'s NetWare Video and Starlight Networks Inc.'s Starworks-TV video servers, it supports IBM's OS/2 LAN Server Ultimedia, Windows NT Server, and First Virtual Corp.'s Media Server.

VideoNotes 1.1 also improves video distribution by allowing administrators to use a Notes server to publish video information that is stored on CD-ROM.

"CD-ROMs are much slower than video servers on a network," said Arthur Souza, project marketing manager at Lotus.

Tony Terraciano, senior technology officer and multimedia project manager at Chemical Bank, in New York, said some executives at his company plan to use VideoNotes for video E-mail.

"Right now it's in the lab only," Terraciano said. "The initial rollout will be to a pilot group of four top executives, with an expansion to 12 top executives depending on the results of the pilot."

Lotus VideoNotes 1.1 server licenses cost \$2,695. Windows client software costs \$120. VideoNotes 1.1 requires a client running

Lotus Notes, Release 3.2 or later, on a 486 or Pentium processor. Chemical Bank is running its test on Pentium clients with 32MB of RAM. Lotus officials said the company plans to direct development efforts toward a VideoNotes Macintosh client.

Right now the client only runs on Win-

dows," said Arthur Souza, product marketing manager at Lotus. "But when you are talking about video, the first thing out of people's mouths is, 'Do you run on the Mac?'"

Lotus has also announced the availability of a new platform for the standard Notes server. Lotus Notes is now available for Sun Solaris

on Intel. This version will allow users who have Intel-based workgroup servers and Sparc enterprise servers to run Notes applications within a single operating environment.

Lotus is based in Cambridge, Mass., and can be reached at (617) 577-8500.

MCI, GlobalWare plan electronic meeting service

GLOBALWARE INC. has formed a marketing alliance with MCI Communications Corp. to provide an electronic meeting service over networkMCI.

The alliance will use GlobalWare's GroupSystems Global software on MCI's Internet network to support on-line meetings that can include hundreds of participants. Prices will range from 40 cents to 80 cents per minute per user, based on the services used.

GroupSystems Global is based on Ventana Corp.'s GroupSystems software, which allows meeting participants to brainstorm, contribute ideas or opinions, and comment and vote anonymously in real time via their computers.

MCI and GlobalWare are now developing the system platform and expect to go to beta testing in October, with commercial shipments scheduled to begin in the first quarter of 1996.

GlobalWare is based in Atlanta and can be reached at (404) 451-8958.

— Jessica Davis



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MERRY CH

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Vendors upgrade NetWare auditing, reporting tools

By Mark Leon

TWO UTILITIES THAT EASE NetWare management by making data stored in NetWare Directory Services (NDS) more accessible are shipping from BindView Development Corp. and Preferred Systems Inc. (PSI).

With BindView Network Control System

(NCS) 3.6, BindView has upgraded its NetWare auditing and reporting tool.

BindView NCS is a NetWare Loadable Module that collects server and workstation auditing data in a distributed database.

"The distributed database functionality allows me to audit six different sites using SPX

over a frame relay," said Doug Reif, network administrator with Strategic Mapping Inc., a software development and demographic company in Santa Clara, Calif. "From my desk I can now get hardware and software information from every PC that logs in to the network. It makes it much easier to maintain 500

desktops, when most of them are off site."

BindView NCS supports IPX, SPX, and the core NetWare protocol suite. It runs on NetWare 3.x and 4.x and supports NDS through binder emulation.

Company officials said full NDS support will come later this year.

BindView Development plans to announce a Windows NT Server auditing version of BindView later this year with TCP/IP support. This fall the company will ship a Windows interface and a 32-bit agent to audit PCs using the Windows 95 Registry, officials said.

PSI released DS Standard NDS Manager, Version 2, for NetWare 4.x.

DS Standard lets users make changes to the binder or the NDS tree structure off-line. Users who are upgrading to NetWare 4.x can use this tool to migrate binary files to NDS.

DS Standard comes with a drag-and-drop interface and administrative templates. An administrator can create a template and use it to duplicate user privileges across different sections of the NDS tree.

Pricing for NCS 3.6 starts at \$895 for 100 nodes. The management console is sold separately and costs \$295 per file server. BindView Development can be reached in Houston at (713) 881-9194.

Pricing for DS Standard ranges from \$295 to \$4,495, depending on the number of servers. PSI can be reached in West Haven, Conn., at (800) 222-7638.



\$349 \$429

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Stop by Xircom's Booth #2358 at NetWorld + Interop Atlanta Sept. 27-29

LEGATO INTRODUCES LOW-COST UTILITY FOR NETWARE BACKUPS

LEGATO SYSTEMS INC. has announced an inexpensive backup utility for small NetWare LANs that is an alternative to the SBackup utility in NetWare.

The Legato Data Backup Utility (LDBU) is designed for single-server, single-tape-drive networks and runs as a NetWare Loadable Module for NetWare 3.x and 4.x systems. The utility is faster and easier to use and supports more media devices than SBackup, company officials said.

"I would believe, without a doubt, that it is faster than SBackup," said James Gaskin, an analyst with Gaskin Computer Services, in Mesquite, Texas.

LDBU includes five preconfigured backup schedules, which will appear as icons in the NetWare management console, and supports high-speed Digital Linear Tape drives.

"If you do single-server backup, this is an excellent, inexpensive way to do it," said Michael Peterson, an analyst with Strategic Research, in Santa Barbara, Calif.

LDBU is available now from resellers. Users can purchase the product directly from Legato through the company's World Wide Web Home page (<http://www.legato.com>). It costs \$20. Legato is based in Palo Alto, Calif., and can be reached at (415) 812-6000.

—Mark Leon

LAN TALK • PAUL MERENBLOOM

Remote access can lead to dangerous security holes

LAST WEEK, I started discussing one of Windows 95's features — remote access — and its potential impact on us. As you probably know, Microsoft Corp. is promoting the idea of remote network access, and more specifically, remote node access, as a key feature of Windows 95.

With more than 1 million Windows 95 upgrades already sold, somebody in your

enterprise is bound to discover this feature and ask you about connecting home or hotel to office. And, making the possibility of this connectivity more attractive, Microsoft has included drivers from Digi International Inc. and Shiva Corp. right in the package. So it shouldn't be too long before your phone rings.

Fortunately, Shiva code works right from



the box. No kidding. If you're running over a 14.4 Kbps or 28.8 Kbps line, you won't see any LAN speed records, but you can connect, move files, do print jobs, and send and receive E-mail pretty easily.

The Digi and Shiva products facilitate remote node operations; you are actually a node on the LAN just as if your machine were physically attached. The other popular approach is remote control using products such as Microcom Inc.'s Carbon Copy, Ocean Isle Software Inc.'s ReachOut, and Symantec Corp.'s Norton PC Anywhere.

No matter which product or approach you select, there are some common holes that can result in unwanted visitors on your network. Is this a big deal? Maybe not, but if you're running Internet Protocol and have interconnected PCs, LANs, minicomputers, and mainframes on a company-based internetwork, you could be exposing more than you think.

So before users read the Windows 95 box and demand remote access or before you — in the spirit of trying to be proactive — tackle this technology, here are a few tips to keep in mind:

- Remove all default accounts and passwords from the remote access product or products you choose — but only after you've brought the system up, tested it, conducted end-user pilot tests, and are familiar with its workings.
- Contact technical support services offered by the remote access providers and ask them how to close up security holes without creating any traps for yourself.
- If you choose remote node over remote access as the vehicle to connect geographically disparate users to a corporate network, use mechanisms that support packet filtering. I advise this for two reasons. First, the bandwidth linking remote and host is precious, probably limited to less than 100 Kbps. Second, you don't want Service Advertising Protocol and Routing Information Protocol traffic needlessly broadcast over the wires. Packet filters can limit or eliminate this risk.
- Do not give users the same password for first-level security that they use for the LAN. This is a bad idea. If you have automated password synchronization between the user's home file server and the communications server, it may be OK, but security folks will tell you having more passwords that are different is better for security.
- If possible, add an extra entryway password to the communications servers, a password you can set as the LAN administrator and update on a biweekly basis (or more frequently). This way you know who is trying to remotely access the network.
- Use audit trails! You want to know when attempts to access the network are made.

A lot more can be done to lock things up, but remember — we're looking to strike a balance between access, security, functionality, and ease of use.

Drop me a line. What products are you using? Do you care about fire walls? User authentication? Any war stories worth sharing? Best answers get an *InfoWorld* coffee mug!

Paul Merenbloom is vice president of telecommunications research at Piper Jaffray, in Minneapolis. Send comments to him at plmeren@mci.com.



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Agreement
Comprehension
Attention
Participation

[1] CARR Report No. 110-3A "Does Color Pay?", Color Publishing Co.
[2] "Update on color printing on office equipment," PC Magazine, November 27, 1984.

COST CONTAINMENT REPORT



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PRINTER PRICE



Source: PC Magazine, November 27, 1984 Annual Printer Survey

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Tektronix

TO THE EDITOR

Reaction to our special Windows 95 issue came from all corners — from readers who just wanted to drop us a few lines about our review of Windows 95, "The Verdict: 6.1" (Aug. 21, page 1) and others who wanted to rail against stubborn IS departments hell-bent against an enterprise-wide upgrade. We received appreciation from readers for the practical information found in our Special Report, "Windows 95: It's your move" (Aug. 21, page 37). We angered a few readers who said we'd "sold out" to Microsoft Corp. hype. And we heard from an exasperated few who mistook our comprehensive coverage for some form of aversion therapy.

Reviewing the review

GOOD REVIEW. The score is a bit lower than I would have given it, but I think your assessment is quite realistic.

But you knew that was coming, I'm sure, when you also wrote: "Windows 95 is like an average kid damned by high expectations."

Don't blame Windows 95. Put the blame where it belongs: on the parents.

John Beaman
Toronto

WOW, WINDOWS 95 received a grade of 6.1 out of 10. OS/2 Warp received a grade of 8.1 out of 10 and an InfoWorld Hot Pick seal of approval. (See "OS/2 Warp goes light years ahead of 2.1," Nov. 14, 1994, page 167.)

Looks to me like Windows 95 gets an "F". Try again next semester, Microsoft.

Paul A. Stevenson
102473.212@compuserve.com

YOUR REVIEW was a great article — a fair and balanced opinion. I'm interested in the new test plan and pitting Windows 95 against the competition.

It would be nice to look at Windows 95, OS/2 Warp, and the Macintosh in an unbiased comparison.

Don Justice
Washington
justiced@ix.ix.net

AS A FAVOR to your readers, in the future, please test how Windows 95 applications install and run under Windows NT. This is particularly important now that most managers are debating whether to upgrade to Windows NT or Windows 95.

What are the issues of jumping to either operating system?

I would love to know how NT would have fared in the multitasking test of the mix of DOS and Windows 95 software in instances when you were downloading files from a BBS service.

Please overcome the temptation to focus solely on Windows 95 and give us the evalua-

Ed Foster on vacation

Ed Foster's column will be back next week. Please continue to send testimonials about problems you've had with software. He's collecting these testimonials as part of an effort to help win protection for software buyers without the need for federal regulators. (See "UCC committee should hear from software users, not just software vendors," Sept. 4, page 50.)

Send your testimony to gripe@infoworld.com or fax to (415) 312-0570. Write "UCC testimony" in the subject line.



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Users stage mutiny

STEWART ALSO'S comments on a guerrilla installation of Win95 could not be more on the mark. (See "Popular revolution, not conventional wisdom, may bring Win95 to your office," Aug. 21, page 100.) That is the very scenario that unfolded at my company with the upgrade from Office 3.0 to 4.0. I dragged its feet and had no intention of upgrading to Office 4.0.

What happened? People began bringing in disks from home and loading it, and departments began buying copies out of departmental funds. Soon IS had to reverse itself and install Office 4.0 everywhere.

But does IS learn from the past? Noooo! As the head of IS responded to my E-mail suggesting they consider Win95, "We need to time the expenditure to the appropriate payback point on the maturity of the product and our own requirements." Translation: "We're not going to move on it until we're forced, kicking and screaming, to support our users."

Marc Beckwith
Tempe, Ariz.

INFO WORLD magazine has a great cover — a fair and balanced opinion. I'm interested in the new test plan and pitting Windows 95 against the competition.

It would be nice to look at Windows 95, OS/2 Warp, and the Macintosh in an unbiased comparison.

Don Justice
Washington
justiced@ix.ix.net

INFO WORLD bought the hype

I AM DISMAYED and angry at how your magazine has caved in to the Microsoft media machine. Some of the perceptions in your articles about Windows 95 need to be rethought. Here's one:

"Windows 95 is a true 32-bit multitasking, multithreading OS."

It ain't so. Windows 95 is a 32-bit shell that boots out of 16-bit legacy DOS. It's a marketingploy.

You also say Windows 95 is an "upgrade." It is not an upgrade. An upgrade presupposes following the same interface, internals, APIs, and so on. The only thing that Windows 95 contains that can be seen as a legacy of 3.x is the Windows name. Windows 95 is a conversion.

In your own articles you use the word "migrate."

Did anyone out there migrate to Windows for Workgroups 3.1? Did anyone completely retreat their clients? Support staff? Buy all new applications to make this "upgrade" permanent? Upgrade all hardware to accommodate this "upgrade?"

IS is right now at a crossroads to move into the next decade.

Any way you move will mean retraining costs, hardware costs, down time, conversion costs.

Do not sell me an upgrade. This is not an upgrade.

tive tests we need — Windows 95 vs. Windows NT and, where appropriate, OS/2.
Tim Oliver
tqoliver@ix.netcom.com

The best-laid Win95 plans ...

I KNOW what your writers mean when they say, "IS managers are now finding carefully crafted adoption plans under siege from end-users demanding immediate adoption of the 32-bit environment." (See "IS feels Windows 95 heat," Aug. 21, page 1.) My 5-year-old has started a full-fledged assault on my home OS adoption strategy!

Larry Miller Murdoch
Madison, Wis.

Wild, crazy OS

WITH ALL THE HYPE surrounding Windows 95, I'm reminded of a Steve Martin movie that has Martin's character leaping in joy,

exclaiming, "The new phone books are here! The new phone books are here!"

Oh boy! I'll stick with OS/2, thank you.



J. Bright
Indianapolis

INFO WORLD bought the hype

I AM DISMAYED and angry at how your magazine has caved in to the Microsoft media machine. Some of the perceptions in your articles about Windows 95 need to be rethought. Here's one:

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ments of Marvin Gozman from Jefferson Medical College. (See "IS faces tough decision: migrate now or wait for NT," Aug. 21, page 37.) He says that of his 100 desktops, 95 percent are Macs, and, because PCs are "cheaper overall," he is going to migrate all his Win 3.1 and Macintosh clients to Windows 95.

Now, I don't know what stories or reports Gozman has been reading, but this is a strange move. First, the new PCI Macs and the PowerPC clones have closed the hardware price gap to essentially nil for like configurations. Second, he will incur large software costs buying Windows 95 versions of software already on the Macs. Third, there are training/support costs involved in transferring the Mac clients to an interface that, while close in nature, offers no real benefits. Fourth, he is moving to a 1.0 version of an operating system (and 1.0 versions of software for this operating system) that may, or may not, be a support disaster.

Lastly, and most damning, all studies I have seen convincingly demonstrated that Mac users are more productive and use more applications more effectively than Windows users. Yes, yes, Windows 95 may close that gap. But why, in heaven's name, would you risk two birds in the hand for one expensive bird in the bush?

James R. Ehrler
jehrler@bistream.net

Wants a new OS

NICHOLAS PETRELEY hit the nail on the head in his column. (See "The real scoop on Windows 95: Fearless news reporting in this week's column," Aug. 21, page 98.) As a programmer, a systems manager, and an OS/2 enthusiast, I find Windows 95's faults to be gigantic, and its technology lags the competi-

tion by five to 10 years in most areas. On the other hand, I am rapidly losing faith in the long-term picture for OS/2. IBM's support is doing far more harm than good. And as a systems support analyst, I am starting to look for an OS with application support (which, to be realistic, OS/2 simply does not have now), but with all the power of OS/2 (which NT does not have in the GUI or the command line and Windows 95 couldn't provide in Microsoft's Windows dreams).

Tom Sorenson
Atlanta

A Winning compliment

THANK YOU for a helpful article, "Creating a Win-Win situation." (See Aug. 21, page 69.) As a software developer, I have been frustrated because Microsoft doesn't provide a way to install Windows 95 simultaneously with Windows 3.1. I need an easy way to test versions of my product on both operating systems.

Your article has made my life a lot easier. Except for a problem with the monitor "meta-driver" supplied with my system — I cannot change display size on the fly as easily as I could with a single operating system — the dual installation has worked flawlessly.

Gary Shafe
Birmingham, Mich.

InfoWorld gives a case of the blahs

INFO WORLD: Blah, blah, blah Windows 95 blah, blah, blah Microsoft blah blah blah blah Windows 95 blah blah ...

Ho hum.

Sam F. White
75767.1740@compuserve.com

Switch from Windows? Nope!

AS A SOFTWARE DEVELOPER, I have to comment on Jim Thomas' letter, "Industry gives Microsoft power." (See "To the Editor," Aug. 21, page 35.) In it, he says, "Software vendors must drop Microsoft Windows and move to another environment now." Thomas obviously doesn't have a clue how software development (and business in general) works. The main purpose of any business is to earn money. Windows has a larger audience than any other operating system. Windows software is where the money is. Moving to the Mac, Unix, or OS/2 would be a lot like nailing one's foot to the floor (especially if the other operating systems can run Windows binaries).

Microsoft may not always have the best development tools, but the support is better than that of its competitors. I'd be stupid to switch.

Dana C. Cline

73700.3053@compuserve.com

Give Windows 95 a break? Nope!

IN RESPONSE to Charles Reid's letter, "Give Windows 95 a break?" (See "The Editor," Aug. 28, page 62), I am currently running an OS/2 Warp full-pack at home on a homemade 25-MHz 386SX with 8MB of RAM and a 170MB hard disk. I also have Lotus SmartSuite for OS/2 and most of the OS/2 Bonus Pack

Write to us

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- ✉ MCN Mail: 259-4127; Compuserve: 73267.1537; Internet: letters@infoworld.com
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- ✉ Please include your name, address, and daytime telephone number. Letters selected for publication will be edited for length and clarity.

installed, and I still have enough room for 20MB to 30MB of swap space. The only thing I did to boost performance was add a better video card. It's not a P90, but the performance is good enough for me to wait a few more months before I get a new motherboard. Would I even consider putting Windows 95 on a machine like this? I don't think so!

Mike Ridlon

CHARLES REID SAID that Windows 3.11 users will find Windows 95 a 300 percent improvement. How hard could that be in the first place? I use Windows 3.11 hours a day, five days a week at work on a 66-MHz 486 with 8MB of RAM. I blissfully go home to my 4MB 32-MHz 68030 Macintosh Color Classic with System 7.5.1 running in about 1.5MB of RAM. Isn't 7.5 the latest for the Macintosh? I believe it is. Was 7.5 an improvement from 7.1? Yes. Of course, there wasn't any fancy interface upgrade (because it wasn't needed), but there were noticeable speed improvements along with other small but nice changes. And what exactly is it that Windows 95 can do that the Mac OS can't? Well, it's marketing budget could make one and a half *Waterworlds*. Imagine that.

Jamie Wesson
jwesson@hwway.net

CHARLES REID STATES, "Despite what InfoWorld's test show if you have a 486 with 8MB of RAM, using standard industry equipment, you will be better off than before with Windows 95. Try that with OS/2, Macintosh, or Windows NT."

Well, as a matter of fact I have. I use OS/2 Warp on a 486 with 8MB of RAM every day. I have since Warp's release. It runs great with my quad-speed CD-ROM, 16-bit sound card, and my ISA accelerated video card. I'm sure this is one of many letters you will receive echoing similar sentiments.

I'm not about to tell Reid that Win95 is a piece of junk. It's a logical upgrade for the average Windows user. The issue is not whether Win95 is better than DOS and Windows. I've not seen anyone deny it is. The issue is people trying to make Win95 something it's not.

Lane Beneke
Wichita, Kan.
lane.beneke@jffrsys.com

Reporting flawed, says ASUS

AN ARTICLE, "Flawed IDE controller corrupts data," by Brooke Crothers, indicated that ASUS Computer International was one of the motherboard manufacturers to use the PC Tech IDE chip. (See Aug. 14, page 6.)

We are very appalled by Crothers' inaccurate information and inability to verify with ASUS Computer International his source of information. He did not even recall the name of the person he talked to. When I asked our technical support personnel, they did not recall the conversation. ASUS Computer International has never used the PC Tech IDE chip on its motherboard. In fact, we have never ever used any PC Tech chips in our products.

Jeanette Hong
Marketing manager
ASUS Computer International
Milpitas, Calif.

Our article was based on multiple sources, all of whom had what turned out to be incorrect information about ASUS Computer International. Brooke Crothers had tried to verify the information by calling the company's tech support department. The person he spoke to declined to give any information.

Jai Singh

FROM THE ETHER • BOB METCALFE

Nomadicity means playing name game while getting connected and staying put

Stay home an extra hour this week to read a fascinating new paper about "nomadicity." You'll have its World Wide Web location in a moment, but not before I take my jabs, and not before I urge you to read it — at home. Read the paper at home so you can resist the notion of the Iway turning us all into road

warriors. Nomadicity is an interesting and important concept, but take my basic advice on using the Iway — wire up your home and stay in it.

Nomadicity in the NII was published



recently by the Cross-Industry Working Team (XIWT), a 40-member group of IT companies joined together to develop a common technical vision for the National Information Infrastructure (NII).¹ Such a vision is sorely needed. Developing it openly with industry experts should be tried, so let's encourage XIWT. Judging by its first three papers, the first of which I panned, XIWT's paradigm-shifting visions for the NII are progressing far too slowly. (See "So, precisely where are these visionary set to shape the Iway?" Oct. 24, 1994, page 62.)

The first good thing to say about XIWT's *Nomadicity* paper is that it does not assume we'll all soon be lugging around wireless computers. I predicted here correctly that wireless would flop and that mobile wireless computers would eventually be only as common as pipeless mobile bathrooms — portapotties. (See "Wireless computing will flop — permanently," Aug. 16, 1993, page 48.)

Nomadicity makes the assumption that people might not carry computers — if computers are ubiquitous, they will be there when you arrive. And computers might not be wireless — wires might also be there when you arrive. *Nomadicity* doesn't assume we'll travel very far often. Migrations might be within a building or among "contexts" at the same desk. The second good thing to say about *Nomadicity* is that XIWT seems headed for the conclusion that the hardest networking problems to solve are, as usual, naming, addressing, and routing.

The thumbnail theory of names, addresses, and routes is that people give various names that stick with them no matter what their current addresses are. If you need to contact someone, you ask a name service to convert their name into their address. A nomad's address sticks no matter which routes are taken to reach her. Routers in the Internet convert

addresses to routes. Unfortunately, in building the Internet, this theory got garbled — the designers were graduate students looking forward to sitting at their Ethernet-connected Unix workstations from home to eternity. So

today's "net nomads" make a terrible mess — all those name services to update, all those addresses to reassign.

Hence the need for XIWT's nomadicity working group and their vision for "seamless" technology. Two solutions lightly sketched in XIWT's initial nomadicity paper are "location coordinators," which keep track of changes in who is at a given location, and "aliases," software agents that represent nomads to their current location coordinators. Details at 11.

Now, if it's examples you like, consider parts of the very Web location at which you'll find XIWT's *Nomadicity* paper: <http://www.cnri.reston.va.us/xiwt>.

The http:// part says which transfer protocol XIWT's Web server uses. Why can't the server tell your browser this when it gets there? The www part says that the specified Web location is (duh) on the Web.

The cnri part is the actual name of the organization that houses XIWT, namely the Corporation for National Research Initiatives. (Call CNRI at [703] 620-8990 and they'll mail you a copy of *Nomadicity*, which might be simpler.)

The reston.va.us portion of *Nomadicity*'s Web location is the current city, state, and country address of CNRI. The xiwt part of XIWT's Web location says you are interested in XIWT.

Now, imagine all those browser bookmarks that will need updating when XIWT moves to, say McLean, Va. Imagine if another CNRI is already operating in McLean.

Anyway, read *Nomadicity*. You'll find it interesting and frustrating.

I hope you'll join me in egging on XIWT — and routes is that people give various names that stick with them no matter what their current addresses are. If you need to contact someone, you ask a name service to convert their name into their address. A nomad's address sticks no matter which routes are taken to reach her. Routers in the Internet convert

Bob Metcalfe invented Ethernet in 1973 and founded 3Com Corp. in 1979. He receives E-mail at bob_metcalfe@infoworld.com via the Internet.

Ask most Lotus® Notes® users, and they'll tell you the benefits speak for themselves: Custom business applications that slash cycle times, redefine operational efficiency and eliminate paper. Financial returns that International Data Corporation calls "simply staggering."¹ A rapid application development environment that is quickly becoming the client/server tool of choice.

Yet to a systems administrator, all this collaborative computing can imply huge challenges — not to mention the potential hassles in administering far-flung networks. Without a reliable and manageable infrastructure for messaging and groupware, and the tools to maintain it, no distributed computing architecture can live up to its business potential.

What IS teams need are practical ways to:

- Deliver reliable systems for users while minimizing costs
- Develop and deploy mission-critical applications across geographies and heterogeneous computing platforms
- Provide efficient and responsive end user support.

For all these reasons, Lotus Notes offers elegant solutions to the common challenges around managing groupware and messaging networks.

The Notes View on Network Management

Trying to manage a network without real-time information on traffic flows is like working with a blindfold. NotesView,TM Lotus' graphical management tool, literally gives administrators a picture of how a network is functioning — including statistics on mail delivery, replication, and database server performance. Alert mechanisms point out mail routing bottlenecks or disk space availability issues, allowing administrators to act

before end user service levels are affected. Any server in the Notes environment can be accessed from a single administrative console, allowing you to centralize server support while retaining the flexibility to locate servers for optimal performance or minimal telecommunications costs.

and data across diverse computing platforms and geographies, and synchronizes Notes directories. As a result, administrators can manage application deployment from anywhere in the network.

Notes also lets you automate repetitive administrative actions, such as re certifying user IDs. Moreover, Notes lets you centralize administrative tasks such as setting up replication topologies for the enterprise, while tasks such as adding new users can be performed at the local level.

The Product Is the Solution

Custom help desk applications built with Notes technology are available from Lotus or many of the over 10,000 Notes business partners. Notes' built-in workflow capabilities can route service requests to the appropriate support specialist automatically, even paging them if necessary, and Notes lets you track these calls all the way through to resolution. Finally, Notes lets you store a complete history of each incident in a secure database, providing a rich knowledge warehouse for the future.

The bottom line for today's administrators is that the better you can manage your systems, the more valuable you become to your business units.

Managing groupware cost of ownership is only one way that Lotus is helping thousands of organizations attain competitive advantage. And they're doing it with one product. Lotus Notes.

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Training Wheels

THAT WORK

By Doug Fine

Panicky neophyte desktop computer users are big business, to the tune of more than \$3 billion last year, according to a Dataquest Inc. study. Training companies are propagating across the landscape like dandelions. Yet for all their investment, corporations frequently say computer users still don't "get it." And computer users often lament that they are inadequately prepared to effectively use the tools of their trade.

The issue is how to get the most training bang for a buck, say IS managers and training experts. Will a general-purpose course give your

users the skills they need to use on a daily basis, or is customized training a requirement? And once you send John and Jane to a course, how do you make sure

they retain the knowledge they've acquired? Ay, there's the rub.

Few people will publicly discredit training — in some quarters it has become a near religion.

"United Airlines just bought the first 777s from Boeing. But they didn't just give them to

the pilots and say, 'Give em a fly — see how they work,'" notes Doug McBride, executive director of the Information Technology Training Association. Indeed, from airline pilots through fast-food burger flippers, training is an essential part of any job.

Addressing this need and the concurrent adoption of shrink-wrapped software, training companies say they can take the pain out of training. Does your company need its accountants to learn Excel by tax season or the secretarial pool to get up to speed on WordPerfect quickly? There is a training organization — or two — just for you.

Wondering what you get for a \$200 tuition fee, I went undercover — well, sort of — to attend a one-day class called "Beginning Excel."

Actually, the people at the San Francisco offices of Executrain Corp. (based in Atlanta) knew I was with *InfoWorld*. But the bored administrative assistant who spent a large part of the day playing Solitaire didn't, nor did any of the other 10 members of the class, which included employees from GE Information Services Inc., Nestle Foods Corp., and Round Table Pizza.

In many ways, Executrain is similar to its competitors — general-purpose courses are offered, in one- and two-day formats, throughout the country. Courses cover the popular software titles and platforms. With the increased interest in such IS-oriented products as Powersoft Corp.'s PowerBuilder and Sybase Inc.'s Sybase SQL Server, Executrain and others are adding "professional"



courses to their offerings.

But this course was decidedly for end-users who had requested or been told they needed to learn Excel. Having had a bit of Excel during college, I found the class a little slow moving. But, according to my notes, by 11 a.m., we were doing quarterly sales reports for a fictional cookie company, whose employees were named after members of the Bunch.

And there is no question that by the end of day, the class knew a good deal more about functional Excel routines such as pivot tables and naming ranges. For someone coming in cold who was going to be using spreadsheets as a regular part of his or her work routine, this seemed a worthwhile investment.

DID IT STICK? Analysts and frustrated support personnel say plopping a reluctant user into a training course does no good if the skill is not going to be used immediately and regularly.

"Public training courses may be the only thing available for some companies," says Naomi Karten, a speaker and trainer based in Randolph, Mass. "But people go into overload over the course of a full day, especially if they're novices. There's a leap from acquiring the information to being able to use it on the job."

I called up the administrative assistant, Karen Izzarelli, who works in a San Francisco Bay area office of GE Information Services, 10 days after the class to ask her if she still grasped the nuances of tricky Excel maneuvers. Personally, I don't use a spreadsheet as often as I go bowling, and I had forgotten nearly everything from the course by the time I made the call.

Calling Excel "useful but not integral to my job," Izzarelli says going to the Excel course was her choice; her manager supported her decision but did not require her to attend this course.

"I learned a lot of shortcuts, but the class moved way too slowly," Izzarelli says. "I guess this wasn't my style of trainer."

Izzarelli echoes consultants' warning that selecting training companies can be a spruce-up because of a very big unknown factor: the teacher and his or her own style.

And Izzarelli has found it tough to retain the tricks she learned. "Since I don't use Excel every day, when I went to the task, I found I had to look it all up," she says.

Executrain, like many training companies, provides workbooks that include all the material covered in the course, so students can take a reference with them.

Executrain's communications manager,

Randy Renbarger, acknowledges that students often forget what they learned in class; knowledge retention — and loss — is a function of the way the human mind learns, he says. To address this problem, the company offers students a free help line for questions in the weeks following the course, and free refresher courses.

Yet the phenomenon of forgetting a program's particular features may be inherent in any general-purpose training session.

"We got very little feedback from the outside training we used," says Sue Hollingsworth, a CPA with the Ristau accounting firm, in Modesto, Calif. "[The users] came back and went back to their old habits."

HIDDEN BENEFITS, OBVIOUS COSTS. Analysts and support staff say it is extremely difficult to quantify benefits and payback from end-user training. How do you measure what 10 percent fewer help desk calls saves? How do you know if a spiffy presentation created by a sales staffer fresh from Excel training was responsible for winning a contract? And clearly, forcing every new employee to take a slew of business applications courses will start to take its budgetary toll.

Hardened support-desk veterans do have some ideas about what works and what doesn't work with end-user training.

"Go with specific goals in mind," Karten says. "In the better courses, the instructor will try to learn what people really need to do with regard to their day-to-day work."

Karten adds that training is often far removed from real-life use. In-house classes are often better and more true-to-life than courses offered at training companies' facilities. But she says there are still issues to be overcome, even with in-house training: "People still come from all over the company with different needs," she says.

Departmental managers should spell out when hiring employees what computer skills will be required for the job, Karten says.

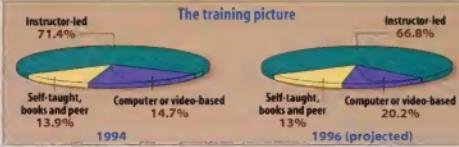
Too often, training priorities are skewed or even ignored.

"I was required to take a 1-hour course before I could sign-up for voice mail, but received no training for E-mail," says an R&D engineer at an aerospace company in Los Angeles. "That's backwards thinking to my mind."

Timing is also important — often crucial — for scheduled training. For instance, L.L. Bean shouldn't send people to training the week before Christmas, says the research engineer. Yet training those same people in the

School comes to the desktop

Instructor-led courses are expected to lose market share to more flexible, convenient computer- and video-based training packages.



SOURCE: INTERNATIONAL DATA CORP.

early summer probably won't deliver results, he adds. "Take training as you need the skill you will be acquiring — not a month before."

Training industry experts recognize that this problem of job focus and timing needs to be addressed. Industry experts these days are beginning to speak about the decline of general application courses and the rise of job-centric training.

"We envision classes not in Excel generally, but rather in using spreadsheets for presentations, for example," says Elliot Masie, president of the Masie Center, a technology and training think tank based in Saratoga Springs, N.Y.

Courses should include some work relevance, adds Dr. Ellen Kitzis, vice president of Worldwide Services at Dataquest, in Westborough, Mass. "Something to at least make the course seem like it has something to do with the end-user's job," she says.

HEY, JOE, HOW DO YOU ...? Another buzz phrase that consultants see as legitimate is the notion of users mentoring one another.

"Have well-trained power users around to answer questions, which won't tie up the help desk," says Ellen Julian of International Data Corp., in Framingham, Mass. Yet, she adds, a mentoring system requires precise balance, because each time an application expert is tapped for a novice's question, the expert's productivity declines. (Indeed, the research engineer in Los Angeles is a frustrated mentor.)

Experts say follow-up training is essential. "Piecemeal training doesn't cut it," Julian says, adding that some companies even offer incentives — such as bonuses and vacation days — to encourage users to develop and solidify skills in their own time.

CONVINCING MANAGEMENT. There are still two classic reasons end-user training doesn't happen or goes wrong: apathetic users and apathetic managers. Because of the competitive atmosphere in the workplace these days, the former is becoming less of a problem, experts say. But the latter still exists.

"Success is determined by why managers are giving people the training," says a scientific applications programmer at a Canadian government agency. "Some of the managers are just plain [jerks], and don't do it unless they have to."

Support staffers say if users see that their manager supports the training and wants them to gain the knowledge, the benefit can show up in indirect but tangible ways: When filing a financial report after taking an Excel course, for example, the user had better know how to make the most of the application.

But just as grades don't compel students to

learn arithmetic, all the management encouragement in the world won't really have a lasting impact if the subject doesn't intrigue the student, according to Steve Rainness, former support manager at Computer Associates International Inc., in Islandia, N.Y. "I found that if they were just told taking a course because their manager told them to, it didn't do any good," Rainness says. "It helps if it wasn't just related to work, but to their personal computer use as well."

"I've worked at companies that had no training plan, where they thought it was up to the users to learn," Rainness continues. "I've found the work suffers and the morale suffers" in institutions where training is not part of the work ethic. Rainness says he sees a world of difference at his present job at Chase Manhattan Bank, in New York, where there is emphasis on end-user training.

PAYOUT. For all the concern that end-users aren't retaining the skills they acquire, concerns that training misses the mark, companies are enjoying tangible results from their training investments.

Atena Life and Casualty, based in Hartford, Conn., exemplifies a trend toward offering not only access to courses but also training tapes, short in-house courses, and multimedia-based follow-up sessions.

The payoff at Atena is more than end-user self-sufficiency. With its strong commitment to training, Atena has considerable negotiating leverage with training vendors.

"It's actually cheaper for us to bring in a trainer in-house, which also often proves more effective, with smaller groups in classes," says Rick O'Coin, director of information technology at Atena.

Even the software vendors are getting on the training bandwagon. Seeing how seriously companies are taking well-trained non-technical employees, Novell Inc. is starting to issue certification for end-users, analogous to its Certified NetWare Engineer designation for NetWare specialists.

It remains to be seen how many people will put "Certified WordPerfect User" on their resumes. But Dataquest projects that by 1998, companies will spend \$4.7 billion on desktop computer training — betting that corporate productivity and desktop skills are linked.

As your company reviews its training needs, analysts would recommend you consider customized courses, provided at your site or even at the users' desktop, that are packed full of immediate delivery. And although a smorgasbord of course offerings may seem burdensome, remember: Training wheels are a necessary part of learning to ride independently.

GETTING THE TRAINING YOU WANT, WHEN AND WHERE YOU WANT IT

Productivity Point International, a training company based in Grand Rapids, Mich., offers a product that is essentially a bunch of in-house kiosks at which users can brush up on a specific skill just when they need it. For example, the user may study presentation techniques in Microsoft Corp.'s PowerPoint as he or she reads a slide presentation.

That model sounds good to industry analysts. "The highest rate of return comes from when you need-it-train-it, easy-to-use modules of 10 or 15 minutes," says Bill Kirwin, vice president of the Gartner Group Inc., in Stamford, Conn. "Little bu-

le points of information nuggets. There are no travel expenses, and you can reuse the materials."

Today, some 77 percent of training expenses go to instructor-led training, according to Dataquest Inc., but Kirwin and others envision a vast increase in on-line-based training — incorporating multimedia features and offering hands-on tutorials — in the near future.

Elliot Masie, president of the Masie Center, a technology and training think tank based in Saratoga Springs, N.Y., believes that the training industry's future lies in custom, on-line, and video-based training.

MANAGER'S BOARD

BULLETIN

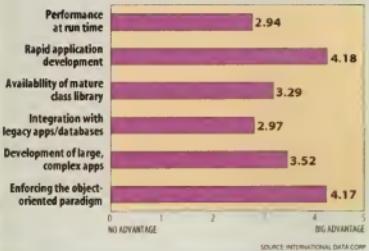
POSTAL AUTOMATION TACKLES FORMS. Every one's nightmare of bureaucracy run amok includes frowning clerks demanding pink, yellow, and blue forms in triplicate before stamping the pile and moving it to the next form-eating department. F3 Software Corp., in Burlington, Mass., has been dispatched to make sure this doesn't happen in the friendly offices of the U.S. Postal Service. Forty thousand Postal Service employees will be affected — for the better, we hope — by F3's automation of 300 business forms formerly filled out by hand. The agency hopes to save several million dollars during the next three years. Sixty forms have already been converted, and F3's strategy is to think of the Postal Service as a large corporation, according to company documents.

HAVE YOU WORKED WITH A FORD CAD ... LATELY? Back in the private sector, Ford Motor Land Services, which coordinates real estate and construction activities worldwide for Ford Motor Co., had a problem: It was difficult for corporate divisions to share CAD drawings and files across the enterprise. The Detroit-based consulting company Computerized Facility Integration was brought in to devise a single method for creating, sharing, and tracking CAD files worldwide. The method? Ford Land implemented AutoManager Workflow from Cyco Software and AutoCAD on a NetWare LAN at Ford Land headquarters, in Dearborn, Mich. More CAD-equipped LANs are planned for Ford's Cologne, Germany, and Brentwood, England, offices. Ford Land IT Manager Bert Jarreau says he is particularly excited about the BriefCase technology in Version 4 of AutoManager Workflow, which allows drawings and any related non-AutoCAD files to be quickly collected, compressed into a password-sensitive file, and sent to an access by another site.

THE OBJECT OF YOUR ATTENTION. Not satisfied with OLE functionality? Ready to believe in the Common Object Request Broker Architecture, but new to the technology? The Cushing Group is offering two classes that might work for you. The first, Developing Object-Oriented Client/Server Applications Using ObjectBroker, is being offered in Washington Sept. 25-29, in the Detroit area Oct. 9-13, and in San Francisco Oct. 16-20. The second course, for you whizzes, is ObjectBroker Advanced Features: Server Applications. You can catch that Oct. 2-6 in Washington and Oct. 23-27 in San Francisco. Tuition is \$1,950 per course, but there are volume discounts. For more information, contact the Cushing Group at (800) 392-9971 or via the Web at <http://www.cushing.com>.

Speedy development heads list of Smalltalk advantages

On a scale of 1 (low) to 5 (high), Smalltalk programmers ranked the various advantages the language gives them.



New career niches open in IS

■ LAN architecture and planning could be your best move

By Doug van Kirk

If you're caught in a tech support LAN administration job where you're always fighting fires, fielding questions, and facing downsizing, LAN architecture and planning offer a way out.

A rapidly growing field that draws on the experience of LAN operations, LAN architecture and planning could just be your ticket to the glass house of big systems management. As networks evolve from departmental to corporate and as more mission-critical applications run on LANs, IS departments are discovering they need professionals to model network traffic and design segments for maximum efficiency.

The position of LAN architect can be a stepping stone in many organizations, says Andy MacLeod of Desubasified MacLeod Ltd., a Chicago-based IS placement firm. For many, MacLeod explains, it's the next position on the career path from applications development or LAN administration.

LAN architects can save companies substantial amounts of time and money by tracking down network bottlenecks and poorly performing applications, experts say.

This analysis often identifies simple, low-cost ways to improve performance, such as limiting the number of workstations using a demanding app on each segment. By comparing this to the cost of upgrading wiring, servers, workstations, and routers, the LAN planner can easily justify his or her work.

LAN architects typically have two to four years' experience running

networks before moving into their positions and can make anywhere from the 'low fifties to the mid-seventies,' MacLeod says. The position also offers IS professionals exposure to a range of technologies they won't see from the NetWare console, such as inter-company and inter-enterprise wide-area connectivity, Internet access, and telecommunications.

Just about every company needs LAN architects, networking experts say. That's because departmental LANs can't simply be hooked together to form an enterprise network. These planners look at the traffic requirements of current and planned applications to determine the most efficient network.

Their work helps optimize the number of nodes to install on a segment and determine the number of servers needed, where to install bridges and routers, and how to partition advanced client/server applications.

Network planning can make the difference between a network that runs smoothly and one that barely runs at all, says Venk Shukla, vice president of marketing at Systems and Networks Inc., a Foster City, Calif., supplier of network design and modeling tools.

Proper design and planning is critical to a successful move from mainframes to client/server computing, Shukla adds. Without these steps, he cautions, "you can't tell if

you need a bigger pipe or more efficient applications."

But finding the right person for the job isn't a piece of cake.

"It's very hard to find people with [the right skill set] for network planning," agrees Ron Wolf, senior

technical project manager at Charles Schwab and Co., in San Francisco. Having worked in both mainframe and LAN capacity planning for more than a decade, Wolf sees tremendous opportunity for LAN administrators who want to follow in his footsteps. Until recently, he notes, few companies paid much attention to capacity planning on their LANs. Analysts predict that is going to change.

In the middle of a major rollout of client/server applications for about 6,000 desktop users at the financial services company, Wolf is charged with making sure Schwab's brokers and other users don't get slowed down by their network.

The biggest problem, Wolf says, is associating individual applications with the traffic. Despite the availability of modeling tools and traffic analyzers, it's still very hard to figure out exactly which program is loading up the network with packets.

"Most networks are pretty fast running typical departmental software," Wolf explains, "but add mission-critical applications and the traffic level goes way up."

Responsibilities of network architects

- Reconfigure existing networks for optimum throughput.
- Model the traffic demands of future client/server applications.
- Design new LANs and WANs to support mission-critical computing activities.

Administrators who want to follow in his footsteps. Until recently, he notes, few companies paid much attention to capacity planning on their LANs. Analysts predict that is going to change.

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Calendar

September

25-29 NetWorld+Interop, Atlanta. Contact Softbank, (800) 488-2883.

26-29 Seybold, San Francisco. Contact Softbank, (800) 488-2883.

27-29 Commercial Parallel Processing Conference, Chicago. Contact CMP, (800) 808-EXPO.

October

2-6 Software Development East, Washington. Features "RAD showdown" of fourth-generation language tools among Powersoft Corp., Borland International Inc., Microsoft Corp., Gupta Corp., Symantec Corp., IBM, and Oracle Corp. Contact Miller Freeman, (800) 441-8826.

3-5 PC Expo, Chicago. Contact Blenheim, (800) 829-3976.

9-13 Ixpo, Lake Buena Vista, Fla. Includes Gartner Group Annual Symposium. Contact Gartner Group, (800) 778-1997.

18-19 Business Marketing on the Internet, Chicago. Contact Marketing Advisory Council, (800) 882-8684; E-mail: Info@lippc.com.

23-27 Enterprise Management 227-1234.

Summit, Dallas. Contact Action Motivation, (800) 340-2111.

25-26 Electronic Government: Using the Internet and other technologies to improve customer satisfaction, Washington. Contact International Quality and Productivity Center, (800) 882-8684.

26-27 Systems Support Expo, San Francisco. Contact Conference Group, (207) 846-0600.

November
6-9 Next Generation Networks, Washington. Cisco Systems Inc. CEO John T. Chambers is keynote speaker. Contact Business Communications Review, (800) 227-1234.

6-9 Enterprise Expo 1995, Chicago. Runs concurrently with Mainframe Surround Solutions. Contact Enterprise Expo, (214) 669-9000.

December
4-7 SGML '95: Expanding the Universe, Boston. Contact GCA, (703) 519-8160, E-mail: sgml95@aol.com.

4-7 Society for Enterprise Engineering Conference, Washington. Contact SEE, (513) 259-4702.

4-8 DB/Expo, New York. Features head-to-head debate among executives from Oracle, Sybase Inc., and Informix Software Inc. Contact Blenheim, (800) 208-EXPO.

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is their ability to
identify all the country
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They were also the first to see
that their AS/400 Advanced Series
let them develop a huge
direct mail database of customers
without a computer staff.

and those free bagels for the morning regulars.



*From the beginning, the Mitchell family
has made a sale the old-fashioned way —
know each customer individually and help
them choose exactly what they want.*

*Which was easy when the Westport,
Connecticut, store opened in 1958 with three
suits. But today, with 50,000 customers, how
do they keep the personal touch?*

*With a business computer system called
AS/400 Advanced Series.*

*With it, the Mitchell family and their
employees know which customer likes which
designer and can mail word of their new lines.
They know birthdays and anniversaries, so
they can send greetings.*

*More remarkably, they are able to main-
tain this database and get daily sales reports,
without a computer staff.*

*The reasons? The Mitchell brothers'
AS/400 Advanced Series is both powerful
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software Jack and Bill need. And it runs so
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TV Guide stays on schedule with workflow app

■ Digital publishing system, InConcert workflow engine, and E-mail help magazine channel production

By Deborah Asbrand

NEXT TIME YOU'RE thumbing through *TV Guide* to find the channel of that movie you wanted to catch, consider these numbers instead: Each week *TV Guide*'s staff, in Radnor, Pa., churns out 100 editions that will be read by 21 million tube viewers. And cranking out each edition requires 100 steps from preparation to print. That's 10,000 tasks per week.

To improve management of this mind-boggling array of details, *TV Guide* is retiring its outdated cut-and-paste process, which required an Exacto knife and a drawing board, in favor of a speedy electronic publishing platform. Currently, both of these production systems are running in parallel. *TV Guide* declines to specify when the electronic publishing system will fully take over production.

But automating layout and printing is only part of the battle at the magazine, a subsidiary of NewsAmerica, a part of Rupert Murdoch's global media empire. *TV Guide*'s production is at full tilt for three shifts each day, preparing several dozen editions at any given time. So mistakes, such as compiling the sports guide in the Chicago edition before adding the White Sox listings, can happen.

To catch the errors, *TV Guide* decided to impose central controls on its newly distributed publishing system. It set up workflow software as a framework and routed a smart E-mail system through it.

Now the magazine is smoothly synchronizing staff operations, successfully tracking thousands of tasks every day, and making sure each edition reaches the newsstand on time.

CHANGING CHANNELS. Boasting the nation's largest magazine circulation, *TV Guide* has been the bible of couch potatoes since its first issue was published in 1955. But it was only two years ago that the company moved into

WORKFLOW? WHAT'S THAT?

Workflow software not only monitors the tasks you need to do, it also issues reminders that are the electronic equivalent of a tap on the shoulder.

Sound like project management? It's not, says Tom Koulopoulos, president of Delphi Consulting Group, in Boston.

Although the two are often confused and sometimes share the same metaphors, Koulopoulos says, they are very different. Workflow software's rules tell users what they need to do next. Project management systems, on the other hand, capture only the times and links between tasks. Users refer to the software but don't use it to tell them what to do.

Ready markets for workflow software include insurance, banking, financial services, manufacturing, and industries with lengthy research processes, such as pharmaceuticals.

the computer age with development of its new Database Publishing System, known as DPS.

DPS is a client/server publishing system based on hardware and software from Intergraph Corp., in Huntsville, Ala. The system's 24 workstations and 24 file servers run Clix, Intergraph's version of Unix. Oracle7 is the back-end relational database. Editors, paste-up specialists, and other staffers use

Intergraph software to edit and lay out the magazine's features, program listings, and advertisements.

Shortly after arriving at *TV Guide* to program artificial-intelligence capabilities into DPS, Greg Smith noticed that the new system automated the magazine's publishing but offered no coordination of production processes.

To manage handoffs of the 40 editorial components that need to flow through production for every edition with domino-like precision, staffers still relied on low-tech methods. Information was entrusted to a loose system of telephone calls, Post-it notes, and brief hallway conferences.

The result? Tasks sometimes happened out of sequence or were inadvertently skipped, leading to blank pages in preliminary runs of the magazine.

The system highlighted the classic problem of a distributed processing environment: There was no central control, says Smith, who has since taken on the title of project leader.

To remedy the problem, he wrote a prototype 500-line C program that demonstrated how the existing network could be better managed and include built-in notification processes. Management endorsed incorporating this idea into DPS in mid-1993.

THE WISH LISTING. But building the solution was another matter. Smith's wish list of capabilities included project management, network management, and E-mail.

To meet *TV Guide*'s specialized needs, he wanted a customizable, object-oriented package. To keep the project affordable, the solution had to support the Oracle back end and the Oracle SQL connectivity software, and also be compatible with the esoteric Intergraph platform. And the system had to have brains — it had to recognize predecessor and successor tasks and be smart enough to notify someone if tasks happened out of order.

In concert by Xsoft, the Palo Alto, Calif.-based division of Xerox Corp., was eventually chosen. Its object framework and numerous APIs in C++ would be suitable for the magazine's workflow system, which has since been named the Workflow Management System, or WMS.

But even after *TV Guide* found its workflow framework, other obstacles remained. The operators who would be the primary users of WMS were already trying to master the changes DPS brought to their jobs, and they cast a cool eye on the new system.

"There was a lot of skepticism," Smith says. "They weren't sure how this would fit into their work."

To complicate matters, before the pro-

grammers could begin writing the code that would tailor InConcert to *TV Guide*'s system, they needed a list of the production steps, which *TV Guide* had never documented.

"Everything was kept in people's heads," Smith says. "When someone left, the [job] information went with them. One of the benefits of WMS was that it forced us to document the workflow."

When the editor is finished and selects the menu's Close option, InConcert recognizes that the children's guide is ready to be compiled. It sends a remote procedural call to the WMS agent, which queries the resource model built in to InConcert and looks for an Intergraph server with enough processing power to do the compilation task. WMS then initiates an RShell call to the server to start the



A BETTER PICTURE of the 10,000 tasks that go into making the many weekly editions of *TV Guide* is provided by workflow software, says project leader Greg Smith.

And to make the most of WMS' object-oriented model, *TV Guide* had to submit to the rigors of developing software requirements, a time-consuming process.

"It slowed us down, but in the long run it helped us," says programmer Tom Jadicov, senior staff consultant for Information Technologists Inc., a company in nearby Conshohocken that wrote the code for WMS. "In an object-oriented framework, you typically do about 50 percent of your work up front before you start coding. To reuse as much of the code as possible, you want to lay it out properly, so you can use the features to their fullest capabilities."

The object model is well suited to *TV Guide*'s multiple editions. Each edition is an "instance" of the main object with a few modifications. Because *TV Guide*'s 10,000 weekly tasks proved too complex for the InConcert GUI, the programmers replaced it with a text-based interface that manipulates data through a set of user utilities that are written in C++ and use InConcert's APIs.

ON THE SAME PAGE. WMS runs under SunSoft Inc.'s Solaris on a Sun Microsystems Computer Corp. Sparstation 20 server tied in to *TV Guide*'s Ethernet and TCP/IP LAN.

Among WMS' greatest contributions are its sophisticated messaging capabilities. When an editorial staff member is ready to enter the "For Kids" text, for example, the staffer selects a menu option that calls RemoteShell (RShell), the Unix shell. RShell calls WMS on the Sun server, and WMS moves the task to the "acquired" state.

work. The server returns a message affirming it can perform the task and sends another note when it is done.

If the server can't complete the task — for example, copy has not yet been submitted — it sends WMS an error message. WMS sends E-mail to the appropriate staffers through a gateway from UnixMail to Lotus cc:Mail accounts, and waits for intervention and notification that the problem has been fixed.

Right now, 350 of the 100 editions run under WMS as *TV Guide* fine-tunes the system. Performance has been an issue: Some follower capabilities of the replication process were eliminated when they slowed the system for as long as 20 minutes. Capturing the error codes correctly has been another challenge.

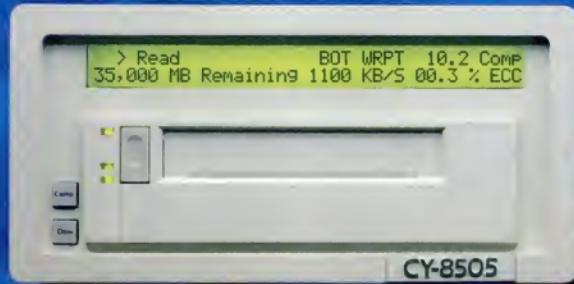
"We want WMS to stop us from doing Step B if Step A hasn't been completed yet," says systems support analyst Rich Bubka. "So we constantly need to work with the developers to this to make sure all of the error coding is complete."

Even short of final refinements, however, the new system has already proved its value.

Take those occasional weekends when Bubka finds himself on the night shift and responsible for the job of forecasting the number of pages in upcoming issues of the magazine. The old system required him to run the log file for each edition, juggling as many as 10 windows at once, and then juggling down the totals on a piece of paper. Now he watches while WMS does the work.

Deborah Asbrand is a free-lance writer based in Boston.

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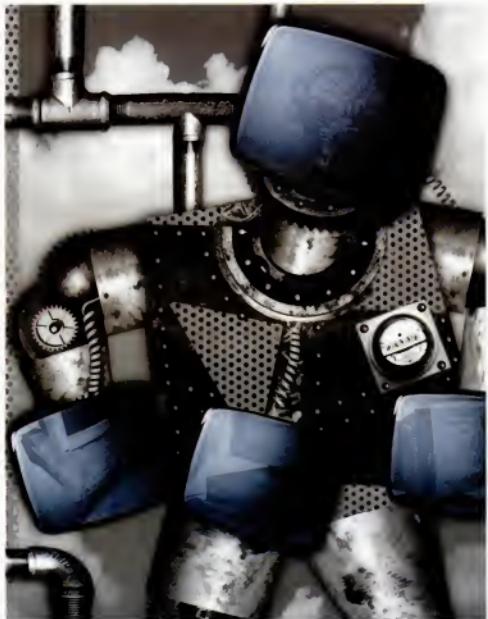
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COMPARED

LANDesk
Management Suite
2.01
Intel Corp.

Norton
Administrator for
Networks 2.0
Symantec Corp.

Systems
Management
Server 1.0
Microsoft Corp.



LARRY SIEGMUND

Faced with the escalating cost of managing desktops in the enterprise, network managers would love to yell, "Don't touch that dial!" Between the Swamp

Thing of user-installed shareware and the Godzilla of do-it-yourself hardware, desktop management can turn into a B-grade horror flick. From user problems with software and configuration files to incompatibility among peripherals, desktop problems can cause network administrators to lose sleep or hair, or both. But by using desktop management tools, network managers can gain important control over the outer limits of their users' desktops.

Glen Farrell, LAN system coordinator for Firestone Textiles Co., in Woodstock, Ontario,

says he recently spent 3 hours in one day trying to install a PC Card-based network adapter in a laptop PC. Even working for an hour with the adapter vendor's support line staff yielded no solution.

Desktop management is not only a hassle, but the cost is formidable. Forrester Research Inc., a Cambridge, Mass.-based research company, estimates that over a five-year period the total ownership cost for each corporate PC is roughly \$8,000; nearly half of that amount is spent on desktop management alone.

The cost of management is divided into two areas: day-to-day management costs and disaster management. Day-to-day tasks include troubleshooting, asset management and installations, and upgrading both software and hardware.

Disaster management includes checking for and eliminating viruses, enforcing security, and recovering lost data. Management problems are multiplied by the growing number of people working from home or on the road, as managers find it harder and costlier to diagnose, much less fix, problems on remote machines.

For now, Forrester estimates that using a home-grown suite of the best management tools could lower the cost of managing a desktop by about \$1,000. Of that \$1,000, Forrester estimates that half would be saved by the use of applications that incorporate desktop management standards, such as the Desktop Management Interface (DMI), and desktop management-friendly operating systems, such as Windows 95. (See "New windows on user management," page 71.) Where are these numbers coming from? They come from the time saved for each user — as much as 20 percent — and the freedom gained for the desktop administrator from not having to perform routine tasks.

VISIONS OF A PERFECT SUITE. The perfect desktop management suite would include enhanced remote management functionality and additional diagnostic capability, especially across a WAN, said Lewis Schrotk, senior business manager for desktop products in North America for Compaq Computer Corp., in Houston.

"Right now, the industry is heavily focused on information retrieval. We need to move to a situation where the management platform interacts with the PC and the subsystems are more self-diagnostic and proactive," Schrotk says.

Although the perfect management solution may be available in the next few years, desktop management has a long way to go.

The common database is a key to interoperability between management tools, says Waverly Deutsch, an analyst with Forrester.

"Network management tools must be able to access one another's inventory information, so we don't have every one of the tools out there collecting and maintaining its own inventory database. [That collection causes] excessive network traffic and redundant storage," Deutsch says. Current tools try to solve this, but the seams are as obvious as cheap special effects.

This focus on network management is growing from LAN-centric utilities to WAN-enabled suites. Another key area for management suites will be multiprotocol support across a WAN, says Bill Larson, president and CEO of McAfee Associates Inc., a Santa Clara, Calif.-based network management utility maker.

Administrators will be able to use TCP/IP, IPX, or another protocol as needed without worries about cross compatibility. Tools capable of crossing WANs will allow administrators to manage multiple LANs from a single site, instead of requiring a manager in every remote location.

WAS THIS TRIP REALLY NECESSARY? Automating mundane tasks can help network managers control costs: Companies can limit the number of support personnel and their travel to remote sites. In this comparison, we focus exclusively on management tools' capabilities to track desktop assets, distribute software to the desktop, and stretch the software dollar by using software metering.

Unfortunately, a complete solution isn't available yet, but a growing number of vendors are reaching for that goal. Platform management vendors such as Hewlett-Packard Co. and IBM are just now taking a peek at the desktop. LAN management tool vendors such as Microsoft Corp., Symantec Corp., Intel Corp., and McAfee are reaching toward the enterprise with integrated suites of management tools that include both systems and desktop management.

CLEARING YOUR RECEPTION. Leaders in the desktop management market include Symantec, Intel, and McAfee, which recently acquired Saber Software Corp. and catapulted to the market share leader. Microsoft's Systems Management Server 1.0 has also recently started gaining popularity and was updated last month.

Our evaluation of Microsoft SMS 1.0 is augmented by a look at Version 1.1. (See page 68.) McAfee is in the midst of merging Saber's LAN Workstation with its own BrightWorks desktop management suite, so we chose to wait until the dust from the merger settles before taking another look at its offering, which could be potent.

Symantec's Norton Administrator for Networks 2.0 provides hardware and software inventory as well as software distribution and license metering for a variety of network operating systems. Norton Administrator can be used either on a LAN or across WAN links. Day-to-day tasks such as software distribution can be handled with Norton Administrator's hierarchical scheme that allows distribution to fan out from parent sites to child sites.

Norton Administrator does not include some desktop management tools such as menuing or remote control of users' desktops. Those areas are covered in additional snap-in tools: Norton Desktop Administrator 1.0, a network management tool for controlling user desktops across an enterprise, and Norton pcAnywhere remote-control software.

Intel's LANDesk Management Suite 2.01 comes closer to true integration. The suite offers a common user interface, data links between applications, and a common database. These links allow a manager to transparently perform complex tasks that use a variety of tools included in the suite.

Microsoft's desktop management offering, Systems Management Server 1.0, focuses on inventory, remote diagnostics and software distribution, workstation management, and scheduling functions. Microsoft SMS shows weaknesses in software metering, workstation inventory, and report writing.

Margaret Dornbusch is a free-lance writer in Austin, Texas. A former staff writer for Network World and former managing editor for NetWare Solutions magazine, she specializes in writing about network management, servers, and backup and storage.

A guide to this comparison



Results at a glance

► Continued from box on page 1
is on the way.

Leading the charge is Symantec Corp.'s Norton Administrator for Networks 2.0, one of the new breed of desktop management software packages. Norton Administrator is the leader of our first comparison to focus on this category, beating Microsoft Corp.'s Systems Management Server 1.0 and Intel Corp.'s LANDesk Management Suite 2.01. All three products attack the problem of desktop management in slightly different ways.

Symantec's Norton Administrator for Networks 2.0 was the only product we tested that is not tied to a particular operating environment, giving it the capability to function in any environment. It offers outstanding client-side application metering and workstation inventory. Database files can be stored on any file server as long as users can access them. Norton Administrator's inventory gave us information that neither of the other two products provided — it even recognized the divide bug on our Pentium. Norton Administrator was also the only product that let us meter software running from either the server or a local hard disk. Its only real shortcomings are in distribution and remote control.

070 Double your pleasure, double your fun. LANDesk Management Suite 2.01 allows side-by-side comparison of configuration files.

071 Car 95, where are you? In our lab, we proved that just about anyone could get around the new Windows 95 policy editor, which Microsoft had touted as providing administrators with unprecedented levels of control over the desktop.

072 Just the facts, ma'am. The new Systems Management Server 1.1 adds remote control over Win95 clients, improved software distribution and inventory, and a report writer.

The Score

7.5
Norton Administrator
for Networks 2.0

6.8
LANDesk Management
Suite 2.01

5.4
Systems Management
Server 1.0

Although Norton Administrator's software distribution capability seems to provide the tools to accomplish the tasks, the tools are too complex. Remote-control tasks require a separate product.

Intel's LANDesk Management Suite 2.01 provides the best overall problem-solving environment, letting the administrator diagnose and fix typical problems such as "I can't print." Using the graphical management console, the administrator can group frequently used commands together for easy access. The new scripting tools provide a way to automate complex tasks. LANDesk is also the only product that provides a full-featured report generator. LANDesk's software distribution feature is the best of the three. Unfortunately,

it fell short in the area of inventory, failing to correctly identify some of Intel's own hardware and incorrectly labeling software without showing us where the file was located.

Microsoft's Systems Management Server 1.0 suffers from initial release syndrome. The product has many capabilities and much potential, but it has holes as well. Microsoft SMS is the most difficult to set up and configure, especially if you're starting from scratch. The hardware inventory is lacking in several areas, overlooking components and incorrectly labeling a CPU. Microsoft SMS' software inventory is the weakest of the three products; capable of recognizing only a minimal list of Microsoft software out of the box. In the area of workstation management, Microsoft SMS is on par with LANDesk's remote control capabilities but doesn't have a configuration file editor. Software distribution is a strong area for Microsoft SMS, although it is more complex than LANDesk's. Microsoft SMS does not have a software metering capability, although it can use Windows NT to restrict some kinds of license usage. Because Microsoft SMS uses SQL Server as its underlying database, the querying features are extensive.

RELATED ARTICLES

Aug. 21, page 32
McAfee tackles Win95 installation
Just in time for Windows 95, McAfee Associates Inc. is selling a stand-alone version of SiteExpress, its software distribution program, formerly only available as part of the integrated BrightWorks network management suite.

Aug. 14, page 53
Piecing together network management
The patchwork quilt of current network management is forcing network administrators to build their own tools while they wait for standards to emerge.

July 31, page 8
DMTF puts more teeth in management spec

By the end of 1995, the Desktop Management Task Force (DMTF) will release a specification allowing standard Desktop Management Interface-based applications to work across LANs and WANs.

CONTRIBUTORS

Introduction by
Margaret Dornbusch

Test plan by
Jeff Symons
Test Developer

Reviewed and tested by
Paul Ferrill
Review Board

Edited by
Scott Mace
Senior Editor, LAN Team
and **Ayse Sercan**
Assistant Editor

Report Card

Desktop management software

GUIDE
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Very Good = 97.5 - Meets all essential criteria and offers significant advantages.

Good = 92.5 - Meets essential criteria and includes some special features.

Satisfactory = 90 - Meets essential criteria.

Poor = 82.5 - Falls short in essential areas.

Unacceptable or N/A = 80 - Falls to meet minimum standards or lacks this feature.

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Weighting LANDesk Management Suite 2.01 Norton Administrator for Networks 2.0 Systems Management Server 1.0

Performance			
Installation and configuration	100	Very Good 97.50 □ 64	Good 62.50 □ 64
Workstation inventory	125	Satisfactory 82.50 □ 68	We had a problem with Norton Administrator's use of the Universal Naming Convention — and that turned out to be a NetWare problem. We didn't like having to manually edit the NetWare Directory Services (NDS) log-in scripts for our 41 servers.
Workstation management	125	Excellent 100.00 □ 68	Norton Administrator has the best inventory capability of the products. Inventory display screens are logical and well organized; they even show a Pentium chip with the floating-point division error. Filtering data based on specific selection criteria was also easy. We like how easy it is to generate a software inventory of every executable file on a workstation.
Software distribution	125	Excellent 125.00 □ 70	Good 78.13 □ 70
Application metering	125	Good 78.13 □ 71	Norton Administrator is the only product we tested without a remote control capability. It can use Symantec's pchviewer, which must be purchased separately. Norton Administrator does provide a way to save historical configuration files and detect changes to them.
Queries and reports	100	Good 75.00 □ 76	Satisfactory 62.50 □ 71

Support and pricing			
Documentation	75	Very Good 95.00	Very Good 95.25
Support policies	75	Good 46.88	Symantec provides three manuals full of step-by-step examples. The index is complete and accurate. Norton Administrator also includes complete on-line help.
Technical support	75	Good 46.88	Good 46.88
Pricing	75	Satisfactory 87.50	Symantec provides 90 days of free, but not toll-free, phone support and a lifetime limited guarantee. Support is available weekdays from 7 a.m. to 5 p.m. Pacific time, or via fax-back, Intel's BBS, CompuServe, or Intel's Web page. Corporate plans are available.
Final score	6.8	Good 46.88	Good 46.88

Final score	6.8	7.5	5.4

Satisfactory 90.00 □ 68 Microsoft SMS installation must be done with careful attention to each phase, or you can't be sure that subsequent phases will work. The few bumps we hit with our Macintosh client could be blamed on an old version of the Macintosh system software.

Satisfactory 82.50 □ 70 Recognizing all hardware correctly was a problem for Microsoft SMS. It mislabeled our 120-MHz Pentium as 90-MHz, didn't detect a mouse on another machine, and didn't report a workstation network interface card Interrupt requests and I/O addresses. Plus, for almost all software, we had to write a definition file; out of the box, the 10 software requires only a few Microsoft products.

Very Good 93.75 □ 70 Microsoft SMS's remote control offers control, reboot, program execute, and file transfer options. The diagnostic component can test connectivity or examine memory, Windows resources, and BIOS information. System files can be collected for archiving or repair, then transferred back.

Good 78.13 □ 74 Software distribution is the cornerstone of Microsoft SMS. Preconfigured software package distribution files provide examples of how to distribute software. We were able to use these files to perform our distribution tests with no problems.

Poor 31.25 □ 76 By itself, Microsoft SMS does not have the capability to meter applications in the current release. Using a feature of Windows NT, rudimentary metering is possible through file sharing limitations. But that capability cannot compare to other products.

Satisfactory 90.00 □ 76 Although Microsoft SMS doesn't have a built-in report generator, Microsoft's SQL Server database gives Microsoft SMS a powerful query capability. Information stored in the database can be displayed in virtually any way, and data export is easy.

Satisfactory 37.50 Microsoft SMS documentation is a single book of more than 700 pages. The context-sensitive on-line help works very well. We liked the help buttons on most of the install screens.

Good 46.88 Microsoft provides fee-based phone support 24 hours per day, seven days per week. You can also get support via a fax-back service, CompuServe, World Wide Web, File Transfer Protocol, and Gopher Internet services.

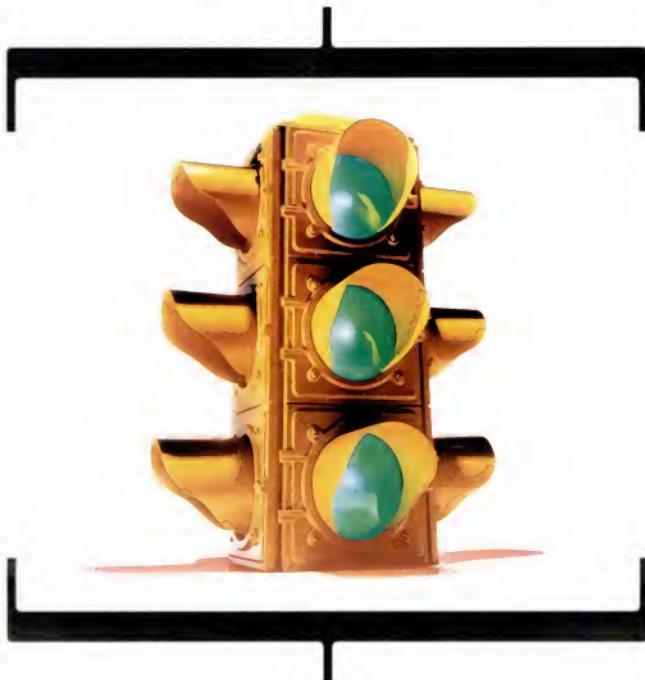
Very Good 56.25 Symantec's technical support was the most responsive of the three. We were connected with a professional, knowledgeable support technician in less than 2 minutes each time.

Satisfactory 37.50 The quality of Microsoft SMS' technical support has improved drastically in a very short time. We received prompt and knowledgeable support every time we called.

At the bulk rate of \$54 a node, our two-server, 100-node configuration cost \$4,400. Norton Administrator is this comparison's least expensive option.



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Product overview

LANDesk Management Suite 2.01

The latest version of Intel Corp.'s LANDesk Management Suite brings significant new capabilities to an established product. When we compared LANDesk Manager 1.51 to its rivals last year, it ranked somewhat in the middle of the pack, with deficiencies in several areas. This release answers every complaint we had about the previous version and goes the extra mile to provide some neat features.

Whereas Version 1.51 collected copies of the workstation configuration files, 2.01 keeps multiple copies so you can tell

We had some trouble figuring out what some of the different file names meant.

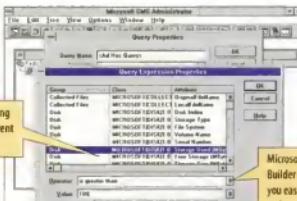
what has changed. The product is now distributed on CD-ROM, which makes the installation process much simpler. A report writer brings functionality to an area that was otherwise broken.

The new features round out the product so that it has few holes in our areas of concern.

Although LANDesk doesn't work in a mixed network operating system environment, as do both Norton Administrator for Networks 2.0 and Systems Management Server 1.0, it does handle multiple versions of NetWare well, including full support for Version 4.1's NetWare Directory Services. LANDesk also uses NetWare Btrieve files, still a standard in the Novell-user world. Multiple client support is solid, handling the Macintosh with ease.

LANDesk also does a decent job of addressing network server management problems that can plague desktop users. For instance, it was the only one of the three products that let us check the status of a NetWare print queue.

Intel has gone to great lengths to make LANDesk a problem-solving tool. A macro capability, new since Version 1.51, lets you record a series of steps that you would normally take to diagnose a specific problem. The macro can then be stored and played



Microsoft SMS' Query Builder dialog boxes let you easily select values and operations via pull-down lists.

back at a later time to automatically perform this same task. There's also a custom report generator that allows you to create additional screens to display real-time information as well as static printed reports. We found the changes in the product to be significant, transforming it from a middle-of-the-road performer to a front-runner.

LANDesk fully supports DOS and Windows clients but can perform only inventory scans on Macintosh clients. For remote control, managed PCs must run a 12KB TSR in system RAM. The management server runs on NetWare 3.x, 4.02, or 4.1 with 16MB of RAM — with 3MB cache memory dedicated to

LANDesk's 20 NetWare Loadable Modules — and 70MB of free disk space. The management PC must be at least a 486 25-MHz PC with 12MB of RAM and 10MB of free disk space.

Norton Administrator for Networks 2.0

Symantec Corp.'s Norton Administrator is the only product we tested that claims to be NOS independent. The only requirements are a server to store the database file and a workstation to run the administrator's software. The workstation inventory program appends its data to the end of the inventory file while the license metering program checks licenses in and out of a license file.

Norton Administrator uses a proprietary database engine, but does export files to Open Database Connectivity-compliant databases for easy query by other database front ends. We found some functions, such as displaying inventory data and executing queries, to be slower than either LANDesk or Microsoft SMS.

In the workstation management category, both Microsoft SMS and LANDesk provide a remote-control capability with the package; Norton Administrator requires each workstation to have a copy of pcAnywhere to accomplish this task.

Norton Administrator supports DOS, Windows, Macintosh, and OS/2 client operating systems. It is compatible with NetWare, Banyan Vines, LAN Manager, DEC Pathworks, and IBM LAN Server. The administrator's workstation runs on Windows with at least 12MB of disk space.

Systems Management Server 1.0

Microsoft Corp.'s System Management Server 1.0 was designed to ease management of myriad desktops that exist on a network. Based on our reader survey, we decided to include it in both our server and desktop network management comparisons because its capabilities fit both. In comparison with LANDesk's ties to NetWare, Microsoft SMS is tightly coupled with Windows NT and SQL Server. Although LANDesk uses NetWare exclusively, Microsoft SMS provides a capability for gathering inventory data from a NetWare log-on server and passing it to the central NT-based Microsoft SMS database.

In Microsoft SMS, we could group domains together to create enterprise-wide sites, which can be central, primary, or secondary. The central site controls all other sites in the enterprise; primary sites control only themselves and report to the central site. Secondary sites are controlled remotely by a primary site. The network's domains are made up of groups of workstations and servers (both NT and NetWare), and are controlled by an NT server.

Microsoft SMS suffers from a lack of depth in scanning and detecting software — Version 1.0 will recognize only Microsoft software. At the same time, the product is overly complex in other areas. Building a package for software distribution requires multiple steps, for example, as does configuring the collection for a software inventory.

For each server running Microsoft SMS, you'll also need Windows NT 3.5 or higher, as well as 28MB of RAM. Microsoft SMS also requires a 486 66-MHz PC with 100MB of available hard disk space.

OS/2 in Windows CLOTHING

On July 24, Symantec Corp., in Cupertino, Calif., shipped Version 1.0 of Norton Desktop Administrator. Designed to ease desktop administration through standardization and centralized management, Norton Desktop allows the administrator to control not only access rights to drives and applications, but also the appearance of the desktop. The product can make the desktop for Windows 3.x, Windows NT, OS/2 for Windows, and Windows 95 appear to be the same, easing migration and reducing training costs.

Installation and configuration

LANDesk Management Suite 2.01

VERY GOOD

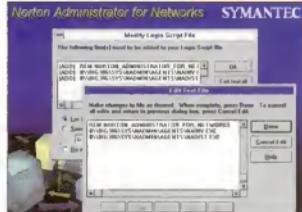
When we last looked at LANDesk Management Suite (then called LANDesk Manager) in a product comparison, the installation and setup section didn't fare too well. Version 2.01 fixes all of our installation complaints and makes some things work better.

One big complaint we had before was our inability to do anything more than approve or disapprove changes to the system files. With this version, we were able to view and even edit the files during the installation process. We also appreciated the help available throughout the process; all of our questions were answered without having to crack open the manuals.

The biggest hurdle we had installing the software was making sure we had

the latest versions of all the NetWare workstation components loaded. Once that was done, we blasted through the process in short order, thanks to the CD-ROM-based distribution — another new feature for Version 2.01.

All client software runs from the server via the system log-in script. LANDesk also handles NetWare 3.12- and 4.1-style log-in scripts. We found the installation process to be greatly improved and significantly smoother than that of Microsoft SMS. The installation program changes to



During installation, Norton Administrator allows you to view and make changes to the system log-in script.

the client PC system log-in scripts could be better placed. Commands to run the inventory software on PCs, as well as PC-control TSRs, are inside a block of code only a LAN supervisor

would execute. A few seconds with a text editor fixed the problem.

The CD-ROM distribution gives LANDesk one up on Norton Administrator for Networks 2.0, and the problems we had getting the proper NetWare components were not enough to change our conclusion that LANDesk is the easiest of the three products to install.

Norton Administrator for Networks 2.0

GOOD

Norton Administrator is the only product of the three we tested that does not come on CD-ROM, although the entire product fits on six floppy disks. We had no problem installing to a NetWare 3.12 server.

As for NetWare 4.1, Norton Admin-



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FLAW FIX

Novell will fix the Universal Naming Convention flaw in its Virtual Loadable Module with the release of a 32-bit NetWare client in November, the company said.

istrator's independence from network operating systems had one disadvantage: It could not modify our NetWare Directory Services log-in scripts (NetWare 4.1's equivalent of the system log-in script) on our server, so we had to do it by hand. Norton Administrator did make the proper log-in script changes to our NetWare 3.12 server.

On the client side, we discovered some incompatibilities between the standard naming convention that Norton Administrator uses and our workstation setup.

Norton Administrator uses the Universal Naming Convention (UNC), a vendor-independent way of defining a file on the network. A UNC file name includes the name of the server and the volume that the file resides on. Norton Administrator uses UNC as a default for all commands added to the

system log-in script. This did not work on several of our workstations; in fact, Symantec Corp.'s technical support told us that this is a problem with Novell Virtual Loadable Module clients, a problem acknowledged by officials at Novell Inc. So instead of launching one executable file, we had to first map the drive, execute the command, and release the drive mapping. Obviously, we had no problem installing Norton Administrator with DOS or Macintosh clients, as the product does not require you to install a client-side software agent.

■ Systems Management Server 1.0

SATISFACTORY

If you're installing Microsoft SMS from scratch, you'll have to wade through three separate products:

Windows NT 3.5, SQL Server 4.21a, and finally Microsoft SMS 1.0. CD-ROM distribution makes the task somewhat tolerable, but several manual operations must be performed to complete the process, including configuring a dedicated account for the Microsoft SMS administrator, granting specific rights, and attaching specific services to the account. Software inventory is not an automatic process and must be tediously configured before it will work.

Installing clients is a much simpler process, although it could be painful for locations with many different network interface cards (NICs) installed. For each kind of NIC, the administrator will need to build a separate boot diskette.

All workstations with Windows for Workgroups installed can be remotely

configured by connecting to the NT server.

Because we were testing in a mixed NetWare and NT environment, we chose to use the IPX protocol for our NT clients. The only problem occurred when the installation program modified each NET.CFG file in our test bed to use 802.3 as the primary protocol, effectively preventing us from connecting to the NetWare 4.1 server. Each NET.CFG file had to be changed to use 802.2 instead.

Another problem we ran into was installing the Macintosh client. Our Macintosh was running an older version of Apple system software. Microsoft SMS requires Macintosh System 7.1 or later versions to install properly. Updating the system software allowed us to install the Macintosh client software and connect to the NT server.

Workstation inventory

■ LANDesk Management Suite 2.01

SATISFACTORY

All of LANDesk Management Suite 2.01's inventory gathering is triggered by the standard NetWare log-in script. Be warned that if you want to use the Windows-based NetWare tools, the log-in scripts do not run. You'll have to run the TSR and inventory scanner programs after the NetWare shell has been loaded but prior to starting Windows.

The hardware and software scans can run at administrator-set intervals as often as every log-in, or on the fly from the LANDesk console.

LANDesk uses a tree diagram similar to the Windows File Manager to display individual device groups. Icons can be rearranged into a logical order, by department or by any other criterion. Individual workstations can be identified by their network interface card (NIC) address and the last user to log in to the network from that workstation, or they can be identified by a unique number.

While checking on the accuracy of the hardware inventory, we found an interesting mistake. Intel Corp. doesn't seem to be up on its own recent processors, because our 120-MHz Pentium was initially reported as 73 MHz. Click-

ing on the Use Inventory option on the Workstation Summary screen gave us a nearly accurate guess of 119 MHz. Fortunately, LANDesk supports the Desktop Management Interface (DMI) standard and includes a browser for DMI-compliant devices. Using the browser, we were finally able to see an accurate report.

Otherwise, LANDesk gave us a level of detail for hardware components comparable to those of Norton Administrator and Microsoft SMS. We could filter information by category or use a query to select specific items for display.

LANDesk did better than Microsoft SMS did at identifying software, al-

though we didn't like the fact that we couldn't see the path for a particular file as we could with Norton Administrator, which meant that every time LANDesk gave us an unusual report, we had to find the file ourselves.

■ Norton Administrator for Networks 2.0

EXCELLENT

With the other products, Norton Administrator accomplishes all inventory scanning via the log-in script, although it can also initiate a scan when starting Windows. Once we figured out how to use the Universal

Microsoft SMS 1.1: Help for Windows 95 help desks

By Brooks Tally

With the release of Systems Management Server, Version 1.1, late last month, Microsoft Corp. has refined many aspects of its day-to-day operation as well as adding support for Windows 95 clients. Unfortunately, poor integration, erratic documentation, and a difficult setup keep Microsoft SMS from achieving its potential.

Foremost in Version 1.1 is Windows 95 support. With so much new to learn and do in Windows 95, users will appreciate a network administrator's or help desk staffer's ability to view and manipulate the user's screen via remote control, as well as distribute those inevitable patches to new Win95 applications.

Now, even if you have Windows 95 clients, all Microsoft SMS functions are supported and most work flawlessly. Administrators looking to add Win95 clients to an existing Microsoft SMS site will be comforted by the knowledge that the process is virtually painless. Software distribution recognizes Win95 as a separate operating system, so Windows 95-specific products will not be inadvertently installed

on Windows 3.1 workstations.

Version 1.1 includes profiles of more than 2,500 software packages from popular software vendors. We were able to confirm that Version 1.1 does recognize a wider array of software than its predecessor.

Version 1.1 makes software distribution easier than it is in Version 1.0 with improved scripting and packaging utilities. In addition, the software distribution package is now really a general-purpose job scheduling utility, allowing an administrator to run any programs or batch files from client stations, in addition to just installing new software. For instance, you can configure software distribution to run DFRAG on all clients once a month or log out from a file server each night.

Some problems persist in Version 1.1, though — trying to install a package on a NetWare-only client from an Windows NT

server will cause the client to hang trying to receive the package.

Adding Crystal Reports to Microsoft SMS should make viewing inventory data exceptionally easy. Unfortunately, Crystal

strange that Crystal Reports was recompiled to add the SMS product name to the title bar, but not to automatically execute this essential utility. Microsoft acknowledges that the Release Notes direct the reader to Appendix I of the printed manual for information on the SMS utility.

Microsoft SMS' setup program is still not very smart. It doesn't check for many conditions that would keep Microsoft SMS from functioning properly once installed, and it doesn't set up icons for important troubleshooting tools, such as the nice trace utility Microsoft includes. Instead the user is left to leaf through the Release Notes and on-line help, which point to various appendices in the manual, which point to utility programs buried deep in the product's directories. In addition, there's still manual copying of files required.

Anyone setting up Microsoft SMS would be wise to read the manual, the on-line help, and the Release Notes before putting the CD-ROM in the drive. And even then you should not expect the setup to be a quick or painless process or that all the tools will function without some troubleshooting. Once things are actually working, the product is impressive.



Microsoft Systems Management Server 1.1, now shipping, permits remote control of Windows 95 from the Windows NT management console.

Reports does not talk directly to Microsoft SMS' SQL database, instead it talks to some tables created by an external SMSVIEW.EXE utility. So before each reporting session, we had to open a DOS box and execute the SMSVIEW command. It is

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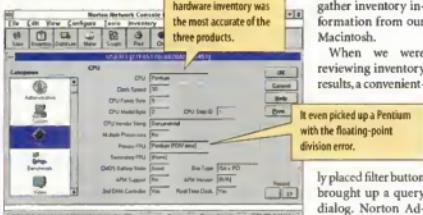
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* Based on CCITT #1 chart (standard mode).

Naming Convention, we had no problems.

Norton Administrator has both DOS- and Windows-based inventory agents, so it can deal with clients that log in to a NetWare server through Windows. Scanning frequency and depth can be configured from the administration program.



We didn't find any mistakes in Norton Administrator's hardware inventory, as we did with LANDesk and Microsoft SMS. All components were reported correctly and clearly. The inventory even told us that our Dell

Computer Corp. Dimension XPS P90 had a Pentium chip with the floating-point division error — Intel's own product did not.

Our 120-MHz Pentium Hewlett-Packard Co. XMS/120 Series 3 machine gave the other two products problems and was also correctly identified. We could even gather inventory information from our Macintosh.

When we were reviewing inventory results, a convenient

button picked up a Pentium with the floating-point division error.

placed filter button brought up a query dialog. Norton Administrator uses a log to save differences in successive inventory scans, making it easy to identify changes in memory and hardware components.

Norton Administrator's software inventory is the most complete of any

of the products we tested. We really like the capability to force a scan of every executable file on a workstation. Microsoft SMS and LANDesk can only accomplish this clumsily, if you create a batch file that redirects the output of the DIR command to a file. We also like the way that Norton Administrator gave us the name of the file and its location, making it easy to check up on aberrant results.

■ Systems Management Server 1.0

SATISFACTORY

With the other products, Microsoft SMS runs its inventory scanner programs through a log-in script. We could also execute the batch file manually. Individual workstations are identified by NIC address and last log-on name.

Although Microsoft SMS reports at a level of detail comparable to both LANDesk and Norton Administrator, we found a few more mistakes in the hardware inventory. Our 120-MHz Pentium HP XMS/120 Series 3 was incorrectly reported as a 90-MHz Pentium. Microsoft SMS was unable to identify

the interrupt request and I/O address of the NIC on any of our workstations, and did not detect the addition of a serial mouse to one workstation after the workstation had been identified.

To run a software inventory, Microsoft SMS performs two separate tasks. The first is to retrieve copies of specified files from the workstation, such as CONFIG.SYS, AUTOEXEC.BAT, WIN.INI, and any other file the Microsoft SMS administrator specifies. Unlike LANDesk or Norton Administrator, Microsoft SMS does not keep more than one copy of these files for comparison.

The second and most confusing task of software inventory is a comprehensive software audit. A step-by-step example in the documentation would make this chore much easier.

Version 1.0 of Microsoft SMS can only identify some Microsoft software, but does allow the administrator to write definitions for other packages. This is easier than it sounds, but not by much.

We could filter and sort the inventory data based on any criteria in the database by using an ad hoc query.

Workstation management

■ LANDesk Management Suite 2.01

EXCELLENT

Diagnosing and fixing problems at the workstation level is LANDesk Management Suite 2.01's forte. The tools to accomplish this are directed at specific user problems such as "I can't print" or "I can't log in." LANDesk's software inventory scanner can keep multiple copies (as many as the administrator wants) of all the major system files.

One new feature of Version 2.01 that we really like is the capability to display two versions of a file such as AUTOEXEC.BAT side by side and compare them for changes. Most problems can be solved by just seeing what's changed in the user's configuration files.

No amount of talking on the phone can substitute for actually seeing what's happening, and LANDesk's remote-control program provides that capability. Using a small TSR (7KB), LANDesk can control both DOS and Windows sessions. Each workstation can establish security measures for remote control, including audible and visible notification that someone is watching as well as limited access to specific users. One option even requires a password before allowing access.

Other remote-control features include a file transfer utility for sending files, such as a modified AUTOEXEC.BAT, down to the workstation; a remote execute capability to force the workstation to run a program; and remote reboot.

A Desktop Management Interface (DMI) control panel allows users to

view DMI-specific information. It gave us access to information we could not see with either Norton Administrator or Microsoft SMS. All of these features add up to a very complete set of tools for managing workstations on the network.

■ Norton Administrator for Networks 2.0

GOOD

Using the software inventory configuration, administrators can select any file on a workstation for version tracking to keep track of changes to the system configuration files. Norton Administrator can also keep historical copies of these files in a manner similar to LANDesk's. It does not, however, show any differences in the files or provide a side-by-side comparison as LANDesk does.

Running a query from the inventory tool can display all changes since a certain date for machines or files in a specific category. This tool could be used in conjunction with the tracked files capability to monitor changes in any critical files such as AUTOEXEC.BAT, CONFIG.SYS, or the Windows INI files. The Save Tracked File option allows you to save any tracked file and resend it to the workstation.

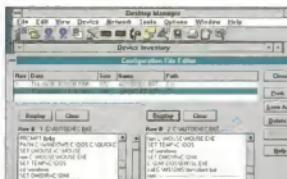
Unlike LANDesk or Microsoft SMS, Norton Administrator doesn't include remote control out of the box. Instead it relies on pcAnywhere, installed on the client PCs, for remotely controlling them on the network. At \$1,099 for 10 nodes, or \$129 per user, a copy of pcAnywhere for every network node would be an expensive proposition. Be-

cause the package must be installed before the client has a problem, your best bet is to buy pcAnywhere's Administrator Install version in volume quantities. With this version, users do not get all the features of pcAnywhere, but Symantec officials say the price is much lower. Because the Administrator install version is a volume-purchase product, the company could not quote a price.

■ Systems Management Server 1.0

VERY GOOD

Microsoft SMS is more than adequate at workstation management. Remote control works like a champ once all the workstations are



LANDesk lets you keep five revisions of the same system file and display two of them side by side at any time. You can save and distribute these files back to workstations.

configured to accept it. The configuration could use some work.

In our installation, the default configuration for the workstation is to not allow remote view, reboot, file trans-

fer, or execute. All of these options are individually configurable at each workstation.

Users can set up visible and audible signals to let them know that their terminal is being watched. Of course, all of these options are only true for clients running Windows. What is definitely cool is that as long as the client can log on to the NT server, it can accept remote control, even if it's on a wide area network. The only remote-control feature missing is the capability to perform these tasks on a DOS-only client.

To collect all the system files, the administrator has to create an inventory package. Once the file has been retrieved and revised, it can be sent back to the workstation with the file transfer option. This feature allows management of any Windows INI file, despite Microsoft SMS' lack of a dedicated tool.

We had no problem editing the CONFIG.SYS for a specific workstation, transferring it back, and then rebooting the remote machine, all from the Microsoft SMS administrator's workstation. We could just as easily have distributed a copy of CONFIG.SYS to a subset of all workstations on the network using a query-based selection criteria.

► The difference between a suite and a bundle, according to Intel Corp., is integration. A bundle lumps together programs that may have redundant features or databases; a suite shares such resources, not only reducing disk space, but providing continuity and integration.

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Software distribution

■ LANDesk Management Suite 2.01

GOOD

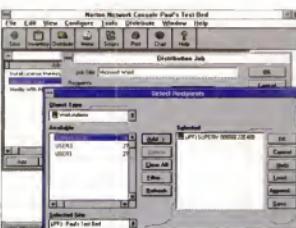
We found LANDesk's software distribution package to be the easiest to use to complete our tests, though it was still somewhat cumbersome. Each distribution package is created by taking a snapshot of a "clean" workstation before a new software product is installed and another snapshot afterward. The difference between the first and second snapshot is then used to build the distribution package.

The downside is if you should decide to do an uninstall of a distributed workstation, the product will restore all of the Windows.INI files to the state they were prior to the installation. Changes made by the user between the time of

the install and uninstall would be lost. There has to be a better way to do this.

LANDesk approaches distribution in several different ways. When you create a package, you can specify the minimum hardware and software requirements by performing a query on the inventory database and distributing the software to only those workstations that meet those requirements. Distributions can even be scheduled during off-hours, even if the

clients aren't logged in but are merely on with their network drivers loaded. Like Norton Administrator and



Norton Administrator's software distribution module lets you select the recipients through a dialog box.

Microsoft SMS, LANDesk can distribute applications to run either from the server or from a local hard drive.

■ Norton Administrator for Networks 2.0

SATISFACTORY

Unlike the other two packages', Norton Administrator's software distribution facility isn't very automated. We found it tedious to create a package to distribute an application configured to run from the server. We had to start the macro recorder, execute the installation scripts, compile the macro, and create a distribution package for it. The entire process assumes some familiarity with Basic and takes way too many steps.

New windows on user management: Windows 95 desktop control falls short

By Margaret Dornbusch
and Scott Mac

When Microsoft Corp. pulled out all the stops last year in a nationwide tour to convince corporate America to upgrade to Windows 95, it hosted presentations before thousands of IT managers promising that Windows 95 would tip the scales of power back in their favor. But after only 3 hours of experimenting with Windows 95's desktop management features, the InfoWorld Test Center recently found major technical difficulties. Microsoft even admitted the shortcomings to reviewers at a June conference.

POWER STRUGGLE. Certainly, the stakes are high. If you're a harried IT manager and desktop management costs are spiraling out of control, the prospect of limiting what software your novices can install or use is tempting. On the other hand, if you're a power user, the spectre of Big Brother controlling your PC is a little like letting a stranger borrow your car or live in your house. For you, the news that Windows 95's grip is well will come as welcome news. In this power struggle, there may be only one winner.

Without help from any other management utility, Windows 95 is supposed to allow a network administrator to lock a logged-on user out of virtually any aspect of the operating environment — even prevent users from installing any programs or making any changes in their environment. Using Windows 95, an administrator can centrally control and customize desktops with system policies and user profiles.

"One of the biggest headaches for an IS organization is users who decide to come in and install things before the organization is ready for it," says Rob Enderle, an analyst with Dataquest Inc., in San Jose, Calif. "Windows 95 provides the tools to prevent the user from doing something IS isn't prepared to support."

For example, the game Doom, from Id

Software Inc., in Dallas, eats system and network resources when played over a network. In theory, Windows 95 can be configured to prevent users from loading the game in the first place. That way, "people who are trying to do legitimate work are not adversely impacted by the people who are not," Enderle says.

POLICY VAULT. The heart of Windows 95's user management is the Registry, where system policies are kept, as well as information about each user and workstation, and from which servers to load policies. User and workstation profiles are stored separately, so users can share one workstation without affecting its configuration, or users can work on different desktops but retain their privileges at each machine.

The Registry contains three files: The USER.DAT file stores user profiles; the SYSTEM.DAT file stores user-independent information about hardware settings, antivirus software settings, Windows paths, and some network information; and the CONFIG.POL stores network security files.

Profiles describe user-specific information such as software preferences, icons on the desktop, or screen saver choice.

Hardware profiles define current hardware settings and enable Windows 95 to adjust system capabilities to match the current state of the hardware. Other components of Windows 95 desktop management include the System Policy Editor and remote administration. The System Policy Editor allows an administrator to control, from a central console, user access to the network and desktop, including the ability to share data and edit system settings.

Restrictions can be set for the user, for the computer or a group, or to define general default settings.

REALITY CHECK. But does Windows 95 really work this way? Forget for a moment that the Registry does nothing to control usage of legacy 16-bit DOS and Windows applications. Let's assume for a minute that

we only have 32-bit apps. We set up the Windows 95 Policy Editor in the InfoWorld Test Center and proceeded to configure the Windows 95 Registry on another machine to disable most operations, including the DOS shell. In fact, this workstation could not run any executable files at all. Even in their wildest dreams, network managers couldn't push such a severe control without a user revolt.

BACK DOOR. Then we went about demonstrating to ourselves how simple it would be for a restricted user to circumvent Policy Editor. We rebooted the disabled workstation in Windows 95's "safe mode." Unlike regular Windows 95 operation, in safe mode we were able to start the Registry Editor.

After hunting around in the Registry, we found the settings needed to reactivate full Windows 95 user rights and privileges. Not only could we circumvent the Policy Editor during that safe mode session, we could reconfigure the system so we could restart Windows 95 in regular mode, log on to the network, and play Doom to our hearts' content.

At Microsoft's Windows 95 Reviewer's Conference in June, one company official acknowledged that it was possible for someone to "hack the Registry." Microsoft seems to be counting on two things: Users won't leave the work-around, and network administrators won't impose such draconian desktop usage policies that users won't be motivated to hack the Registry.

If users expect 15 to maintain their PCs, they are going to have to negotiate and make concessions. Hacking Windows 95 is no solution.

Doesn't all this smack of Big Brother, though? If Microsoft is able to fix the loopholes, all the control inherent in Windows 95 raises privacy issues, because a network manager can control or see just about anything on a user's desktop.

"Privacy is a major issue," says Waverly Deutsch, an analyst with Forrester Research

inc., in Cambridge, Mass. But people are more aware of how their privacy can be violated with PCs and technology than they are of the fact that it is perfectly legal for companies to tap their corporate phones or put surveillance cameras up in their offices, she says.

"People need to get over it," Deutsch says.

According to Deutsch, the PC is no longer a PC; it's a CC — a corporate computer. The corporation pays for it; it's there as a tool for users to do their job, she says.

Companies have limited resources and are adamant about using those resources for the good of the company as opposed to game playing or personal use, Enderle says.

SET EXPECTATIONS. To ease fears of Big Brother, companies should publicize what they consider appropriate uses of remote-control and inventory information, Deutsch says.

Most companies rule that a human resources person who divulges salaries can be fired. By the same token, a company can determine that any network administrator who tracks how often a user plays Solitaire will be fired if the administrator is not doing it at the request of the user's supervisor.

"Productivity is the responsibility of the business manager, not the IS manager, and as companies make clear policy statements to that effect, then a lot of that whole burden will go away," Deutsch says.

Also, companies must gauge how much control they give users based on the users' skill levels and job descriptions. For example, a software company's programmers need greater control over their environments than do data entry clerks. The real gray area is where control begins to inhibit productivity instead of enhancing it, Deutsch says.

"Management should be behind the scenes and should be focused on reliability and predictability, not monitoring," Deutsch adds.

LAN SNAPSHOT TOOLS

Multina Corp., in East Greenwich, R.I., makes a series of products called NetKeeper. The concept is simple: You plug what you need and snap in tools to add functionality. The series includes LAN inventory and asset tracking tools, maintenance tracking and configuration file management tools, a help desk module, and a full purchase-order and asset receiving system. In addition, there are accessories, such as paper and E-mail support, an end-user help-desk request tool, and a report writer.



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Its plug and
playful look.



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Its "bring on Windows 95" pose.



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Its "known around the world" look.



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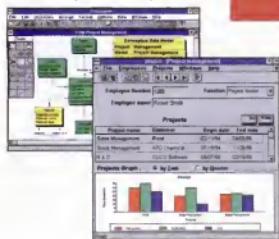
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Worldlink Desk is a powerful universal mail client that provides easy access to sophisticated messaging capabilities from within any Windows compatible application. We call it message enabling the desktop.

It doesn't get easier than this

Worldlink Desk's intuitive interface simulates addressing a paper envelope. Once you've generated a message using your favorite application, here's all you do:

- Pull down the File menu — there's no need to leave your base application. If you're using a MAPI compliant application, you'll find a Send command. If you're using a custom or old style application simply print to the installed WorldLink Printer. (Shortcut — use our default printer icon to select the Worldlink Desk printer.)
- Up pops the universal envelope, ready to address. Click on the Address Book icon. Your Address Book appears. Select a single recipient or an entire group. You can also enter addresses on the fly.
- Click on Send and your message is on its way.

Operations on the receive side are just as simple. Select a message part and Desk's

unique auto-association facility automatically launches the compatible viewing/editing utility. You can even review, modify and include your messages from within an application.

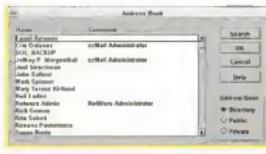
WorldLink Desk Saves Time... Reduces Costs... And Improves Productivity

The envelope/address book metaphor used by Worldlink Desk is so familiar that the learning curve is nonexistent. As a result:

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Worldlink Desk is a Windows-based Message Enabling Application (MEA) that uses the familiar paradigm of addressing a conventional envelope.



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Like Microsoft SMS' domains, Norton Administrator allows distribution of software to multiple servers via what Symantec Corp. calls a site hierarchy, a single LAN that can contain multiple servers. One server within each site, called the *Norton Server*, stores the inventory database for that site.

Action items, Norton Administrator's equivalent to the "packages" in Microsoft SMS, let the administrator create a distribution task via a point-and-click interface. The scripting language is powerful but a challenge to learn.

Norton Administrator comes with sample distribution scenarios that show how to install its own client application and metering components. You automate distribution via Norton Administrator's action list dialog box, which permits point-and-click file copying, editing, execution and deletion; but that's a far cry from installing a complex Windows software product.

For instance, nothing in the Norton Administrator distribution scenario

tells you to turn the macro recorder on to capture complex installation steps. We would have liked a bit more guidance, as was provided by Microsoft SMS' documentation, which led us through step by step.

■ Systems Management Server 1.0

GOOD

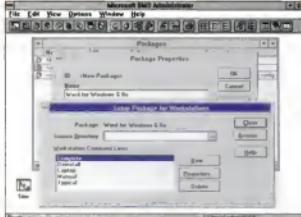
Microsoft SMS uses the concept of packages to bundle all of the files associated with a software application. The package is then sent to different machines based on a pre-defined list of criteria. Packages are created by copying all of the distribution files for the product to a single shared location on the server. It's just as easy to share a CD-ROM on the server — the only requirement is that the shared location must be accessible by all clients.

Because Microsoft SMS works with NetWare log-on servers, SMS can send packages to either Windows NT or NetWare clients. Each client examines a

distribution queue at log-on to determine if any packages are waiting to be distributed. If so, the distribution agent is executed to accomplish the task. Applications need to be distributed to run either locally or from the server.

Microsoft SMS comes with a limited number of pre-defined package definition files, or PDFs. These can be used as "is" or modified to meet your specific needs.

We found a PDF for installing Microsoft Word to run from the server that matched one of our test plans exactly. After we copied the files to a shared directory with the proper name, the Word PDF ran without



In Microsoft SMS, we found a way of installing Microsoft Word to run from the server, which worked fine. After we copied the files to a shared directory with the proper name, the Word distribution routine ran without problems.

problems. For our other distribution tests with Microsoft SMS, we had to generate our own PDF files.

Although the task could be a little easier, we were able to accomplish our distribution tasks without calls to technical support.

Application metering

■ LANDesk Management Suite 2.0.1

GOOD

Because of its server-based metering approach, LANDesk can only meter applications that run from the server.

Although LANDesk can't meter locally run applications, it was the only product in this comparison that clearly documented how to generate any type of alert — including over-use of software licenses — for network administrators.

A DOS-based TSR can meter both DOS and Windows applications. We had no problem configuring LANDesk to meter an application run from the server, and we liked the fact that there were several options for actions taken when the license count is exceeded.

These actions include denying access to the application, placing the user in a wait queue, and allowing a certain amount of over-use of licenses. There's also a career-saver mode: Administrators can grant specific users privileged access so the system won't lock out the president of the company.

LANDesk's Metered Applications screen provides a real-time look at license usage across the network. The screen displays the license limit, the number of licenses in use, the number in the wait queue, and the highest number of licenses used since the limit was reset.

The screen can be refreshed at a user-specified interval. There's also a predefined report that shows such details as how many users were or were not able to access a particular application over the last week.

In addition to the real-time screens and reports, there's an Alert Manage-

ment System (AMS), which can generate an alert based on specific criteria such as license count exceeded.

AMS has a full range of alerting features, including E-mail, pager, fax, an execute program, and the broadcast of a message. In fact, AMS is a product-wide service that can generate an alarm based on the results of any monitor in any area.

Client-side metering: stretching the software dollar

By Scott Mace

Vendors such as Symantec Corp. and Express Systems Inc. are stretching your software dollar even further these days by allowing something called client-side metering, and it's worth pausing for a moment to explain how it works and how it saves you more money.

Traditional server-based metering packages, such as Intel Corp.'s LANDesk, require a separate set of software licenses for each application server.

Other products that meter software, including Symantec's Norton Software, and the stand-alone Express Meter 3.0 from Express Systems, in Seattle, Wash., pool licenses so all application servers draw from a common license server.

For example, they can allocate licenses from a total count of 500, instead of having 100 licenses on each of five servers; if a user in the five-server setup is the 101st user to request a license, server-based metering software won't be able to allocate a license from a second server — but client-side metering can.

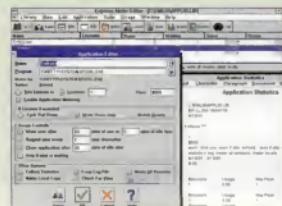
■ Norton Administrator for Networks 2.0

EXCELLENT

Of the products reviewed for this comparison, Norton Administrator is the only integrated product that can meter programs run from either the server or a local hard disk, an option that gives network administra-

tors more flexibility in how they implement metering. (See story, below.)

Another unique feature of Norton Administrator is the capability to meter every application used over the network. With this feature, every launched application is recorded in the license metering log, providing a way to easily determine which applications are used most frequently. The



Client-side metering, provided here in Express Systems Inc.'s Express Meter 3.0, permits the ultimate control over how to alert users that they should close an application; it can even close an application after a specified amount of time.

Express Meter adopts a number of possible tricks with client-based metering software. For instance, LAN administrators can warn users to quit an application after 5 minutes of idle time, or any desired interval.

This could cut down on the need for locked-out users to send companywide E-mail (as happens at many companies, including InfoWorld) asking other users to quit a program to free up a license.

If the idle license remains open and idle

after such warnings, Express Meter can really get serious, reminding users as often as once per minute to quit.

The administrator can also instruct Express Meter to close the idle application after a number of defined minutes or only if another user is actually waiting for a user to quit.

Express Meter has also moved into the vacuum left by Microsoft SMS' virtually nonexistent metering capability.

An Enterprise Optimization Module can import information in the Express Meter license metering database to the Microsoft SMS database. This \$495 Express Meter add-on also provides a reporting module specifically to scrutinize the metering information just imported into Microsoft SMS.

Express Meter sells for \$10 to \$35 per client workstation. At our two-server, 100-user network size, it costs approximately \$2,000.

Express Meter will also add Windows 95 client support this month when Express Systems ships Version 3.1, which will sell for the same price as 3.0.

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Other system configurations and options are available.

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other two products we evaluated meter specific applications, not every application.

Like LANDesk, Norton Administrator provides both DOS and Windows metering. For DOS applications you can either load a small (7KB) TSR or, if memory is tight, use a batch file that will first use a license and then execute the program without the need of a TSR.

LANDesk's Meter Server shows the current list of metered applications.

This option is much more vulnerable to user tampering, a concern for administrators worried about users circumventing the license compliance measures. Norton Administrator offers the same features as LANDesk for dealing with an attempt to execute a metered application when the license count has been exceeded, including the capability to always permit use by important users.

METERING REMOTE USAGE

Metering software licenses for software stored on local hard drives can be tricky — of the products in this comparison, only Norton Administrator can do it. But even it requires that the machines be attached to the network. What about remote users?

Enter Sassafras Software Inc., in Hanover, N.H. Sassafras' KeyServer is a cross-platform, network-OS-independent metering tool. KeyServer doesn't require a file server and can meter software use no matter where the software is launched, be it the file server or networked workstations — even stand-alone workstations and portable computers. Metering is done based on "keys," which are checked out when an application is accessed. Portable computer users or unnetworked workstation users can check out a key — via modem — for a particular length of time. When the time expires, the users can't access the application.

LANDesk's queries and reports underwent a major revamping with the release of Version 2.0; A completely new reporting tool brought bounty where there had been slim pickings. This bounty is maintained in Version 2.0.

LANDesk is the only product in this comparison with a full-featured reporting tool built in to the product. There's even a report form generator that lets you design your own reports. Predefined report templates provide the most common formats and can be modified to suit your needs. We found the entire process to be a vast improvement over the previous version and a real pleasure to use.

Querying for specific data has also been greatly improved. Any field in either the inventory or monitor-results databases can be queried. There's also a calculated field capability that can compute values based on data stored in the database. For graphically oriented individuals, there's a built-in charting tool to create line graphs, bar graphs, and pie charts. You can also export your data as a comma-separated values file.

In addition, a new scripting tool

we really liked Norton Administrator's capability to check for a dead workstation. With this feature, the product periodically looks for crashed or hung workstations. If it detects that a workstation is not responding, Norton Administrator can release any licenses that the machine has in use.

The license-meter screen displays real-time usage of licenses; you can

use each license. Using the charting tool, you can generate bar or pie charts showing total license usage over any given period of time.

■ Systems Management Server 1.0

POOR

Microsoft SMS cannot meter applications the same way that LANDesk or Norton Administrator can. But it does offer a limited capability to restrict how many copies of an application can be executed at a

single time. Individual Windows applications can be configured to run from the

Windows NT server using Microsoft SMS' Program Group Control feature, which provides control over how many users have access to specific applications.

The number of concurrent users is actually determined through a Windows NT feature that lets you configure how many active connections a shared resource can have. What's missing is a way to queue users once

the limit has been reached. And although you can see how many concurrent connections there are to a shared resource, there's no way to determine any kind of historical usage as there is in LANDesk and Norton Administrator.

We were able to use this method to configure our server-based Microsoft Word for limited access and verify that any user attempting to access the program beyond the license count was locked out.

Unfortunately, the only indication that you can't access the program is an error message that you're unable to connect to the shared resource — which is not exactly obvious. Also, there is a way for the result of any SQL Server query (including one created by Microsoft SMS) to be sent out as an E-mail message, but the Microsoft SMS manual never mentions this, leaving considerable guesswork to the user.

Because there is really no metering functionality, there aren't the warning and reporting capabilities found in both LANDesk and Norton Administrator. Frankly, it's a kludgy way to deal with a feature we've seen handled far more gracefully.

Queries and reports

■ LANDesk Management Suite 2.0.1

VERY GOOD

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In addition, a new scripting tool

allows automation of tasks using a language similar to Visual Basic, with a few useful scripts included.

■ Norton Administrator for Networks 2.0

GOOD

Compared with LANDesk's, Norton Administrator's reporting capabilities are pretty limited, but the product does provide a basic printing capability and better data export features.

Once you've selected data using a query, you can export the data to a data-

charts or pie charts of data collected in the other areas of the program. For instance, we were able

to build a report via a point-and-click interface.

to quickly generate a chart that showed Pentium vs. other CPU types on our network.

All of Norton Administrator's modules provide easy access to the query facility. We liked Norton Administrator's query syntax; it was the easiest to read and use of the three products.

The Query dialog box provides an effective interface for generating simple or complex queries, and queries can also be saved for later use. We really liked the drop-down boxes that contained entries for all possible fields.

■ Systems Management Server 1.0

SATISFACTORY

Generating queries was one of the easiest tasks for us to complete with Microsoft SMS. There are even a number of sample queries in the documentation. The dialog boxes include pull-down lists of the various options. Our only trouble was remembering what some of the different field names meant.

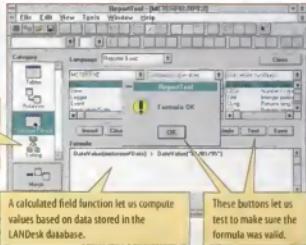
If you're not satisfied with the results of a particular query, you can also use



Norton Administrator's query syntax was the easiest to understand of the three products.

base program using the Export ODBC (Object Database Connectivity) command. An advantage of this feature over exporting comma-separated values is that it preserves the table information, such as field type and size.

Norton Administrator includes a built-in charting tool for creating bar



A calculated field function lets us compute values based on data stored in the LANDesk database.

These buttons let us test to make sure the formula was valid.

the Define Query Results Format button to alter the fields that are reported to a result of a specific query.

There's also a facility for creating ad hoc queries to get a quick report from the database. We had no trouble creating both normal and ad hoc queries. The Query Definition dialog box makes the task a simple one.

Once you've finished a query, you can cut the data and paste it into Excel or Word for inclusion in a report. There's also a simple print capability that dumps the records to the printer.

Microsoft SMS does not include a built-in report generation tool as LANDesk does but relies on its capability to easily export data to other applications.

With the SQL Server database as its underlying engine, the query tool has a lot of built-in capabilities. You can also use a variety of SQL Server front-end query tools or report writers. You can export data to comma-delimited or tab-delimited ASCII text.

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HOW WE TESTED

If you have questions or comments about this comparison, please send E-mail to scott_mace@infoworld.com.

To reflect the increasing implementation of Windows NT and NetWare 4.1, we tested products' desktop management capabilities on these platforms, as well as on NetWare 3.12.

We gave extra points to products with further support for Windows NT clients or NetWare 4.1 specific features, such as NetWare Directory Services.

We constructed a LAN consisting of three file servers and six clients. For the Windows NT server, we configured our Dell Computer Corp. Dimension XPS P90 with a 90-MHz Pentium chip, with 32MB of RAM, a 1-gigabyte (GB) SCSI drive, a Toshiba America Information Systems Inc. SCSI CD-ROM drive, and an Adaptec Inc. AIC-6230 SCSI controller. We configured the Windows NT server with NT's Gateway Service for NetWare. Our NetWare 3.12 server was a 40-MHz 386 PC configured with 8MB of RAM, a 1GB SCSI drive, an NEC Technologies Inc. SCSI CD-ROM drive, and an Adaptec 1540CS SCSI controller.

The NetWare 4.1 server was a Gateway 2000 4DX-33 486/33 with 32MB of RAM and an 850MB IDE drive.

We distributed the network load on two cabling segments, connecting the NetWare 3.12 server to one segment and the NT server to the other. We used our NetWare 4.1 server as a router, connecting it to both segments.

For clients, we connected the NetWare 3.12 file server to our clients: a 25-MHz 386 PC running DOS 6.22 and Windows 3.1; a 12-MHz 386 PC running DOS 5.0; and, as an additional test of each management product's workstation inventory functions, an Apple Macintosh Quadra with System 7.5.

To the NetWare 4.1 file server, we connected a Desktop Management Interface-capable Hewlett Packard Co. XMS/120 Series 3 with a 20-MHz Pentium CPU and a 25-MHz 386 PC, each running DOS 6.22 and Windows 3.1. Finally, we attached a 20-MHz 386 PC running DOS 6.22 and Windows 3.1 to the Windows NT 3.5 server.

PERFORMANCE

Installation and configuration

We installed and configured each product to perform management functions on all three server platforms and all clients on the network. We scored products on their installation's level of automation and relative ease of use.

We awarded a score of satisfactory to products that were straightforward for a network administrator to install. We awarded bonus points for additional automation, such as modifications to system files and log-in scripts, distribution of the application to other clients or servers, or particular ease of use.

We deducted points if a product required significant manual configuration, if it was particularly difficult to

install, or if it failed to work with one or more server platforms.

Workstation inventory

To score workstation inventory capabilities, we performed several inventories of client hardware and software with each product. We performed an initial inventory and checked for the class of machine, the amount of memory, hard disk capacity, BIOS version, OS version, and the application versions on each machine.

We changed the hardware on one system, by removing a RAM SIMM and performing another inventory. We also installed new software and upgraded existing applications on various clients while performing software distribution, then performed another inventory. We attempted to filter the inventory data with rules-based criteria. We produced some basic inventory reports and looked for features that allowed us to analyze the status of resources.

We evaluated each product for thoroughness, accuracy, and level of detail, as well as the capability to easily update the database. A product earned a score of satisfactory if it could perform a functional inventory of clients, correctly identify hardware and software components, and offer ease in updating new equipment or programs. We awarded bonus points for customization, filtering, and reporting features, as well as monitoring resources and performing inventories on all of our clients, regardless of server platform.

Workstation management

To score workstation management, we evaluated each product's management of client configuration files and tools and any remote troubleshooting tools, such as a remote control module.

First, we attempted to view, configure, and make changes to the AUTOEXEC.BAT and CONFIG.SYS files on several clients. Next, we tried to control the desktop settings and application configuration settings on our clients through JINI file distribution. We looked at the product's capability to distribute the changes initially, as well as to continue enforcing the configuration after the initial distribution.

Next, we tested each product's capability to remotely access and control clients on the network. We initiated remote control sessions to clients across the network, connecting through both DOS and Windows. We also looked at remote control security features, such as the capability to disable local or remote keystrokes and mouse activity, automatic rebooting upon disconnect, and password-level security.

We gave a product a score of satisfactory if it could perform a basic level of

desktop management functions, such as providing access to system files and JINI file management. We gave extra points for ease of use or helpful features, as well as the capability to work with clients on all of our server platforms. For a product to earn a score of very good or better, we required it to have remote control capability.

Software distribution

In scoring software distribution, we attempted to install and distribute new applications and application upgrades to all of our clients. We installed applications to run either at the workstation or on the server, then upgraded the application running on the server, changing its configuration so it ran from the workstation.

To earn a score of satisfactory, a product had to offer some method for installing or updating applications on clients or servers across the network. The process had to be fairly easy to perform and it had to offer some level of customization. We gave higher scores to products with capabilities to apply rules-based criteria for distribution, to distribute applications to run locally or from a file server, to distribute applications to other servers, or to preconfigure installation settings for clients. Support for clients on each of our server platforms earned extra points.

Application metering

To test application metering, we focused on each product's capabilities to monitor and manage the license counts for various applications. We evaluated each product based on how it performed real-time monitoring of license counts, refused access to the application, and provided notifications to both the user and the administrator when the license count was exceeded. We attempted to monitor licenses for applications whether they were installed and executed from the file server or on the client machine.

We used each product to limit access to applications based on the number of concurrent licenses and time-of-day restrictions. If the product permitted, we configured it to place users in a wait queue when the license count was exceeded. We then used each product to analyze the metering data, such as the average license usage, how often the program refused access to the application, and which users or groups used the application most.

We awarded a score of satisfactory to products that allowed us to monitor usage of an application (both in real-time and by collecting historical data) and limit or deny access according to administrator-defined criteria. Additionally, a product had to harness the

historical data for application usage.

We gave extra points for user and administrator notification, wait queues for applications, and access limitation constraints based on limit times, users, or groups. Advanced reporting features, monitoring application licenses in use whether they were run from the client or the file server, as well as support for platform clients earned a higher score.

Queries and reports

In this task, we focused on overall querying and reporting features. We evaluated each product's canned reports as well as advanced query features and the capability to create custom reports. We generated several simple reports and a custom report with multiple nested search criteria.

We awarded a satisfactory score if the product offered limited reporting features and included a few canned reports but didn't allow for much customization. We raised the score for additional customization features, graphic display of information, a range of data export features, standards (Open Database Connectivity, OLE, OLE 2.0), data filtering options, and general ease of use.

SUPPORT AND PRICING

Documentation

The documentation had to lead users through initial setup procedures and basic operations. We awarded bonus points for a quick-start guide, tutorials, on-line help, a quick reference card, and other useful material. Poor organization, missing information, or an incomplete index lowered the score.

Support policies

We awarded a satisfactory score for unlimited free support. We added bonus points for support via fax, on-line services, a money-back guarantee, extended hours, a toll-free line, and corporate extended support plans. We subtracted points for limited or no support.

Technical support

We based technical support scores on the quality of service we received during anonymous calls to the vendor and the availability of knowledgeable technicians. We awarded bonus points for extra helpfulness and subtracted points for unreturned calls and waits on hold.

Pricing

We compared the list price of each product in a two-server, 100-node configuration. To achieve a score of satisfactory, the product had to be priced between \$5,000 and \$5,800. We ranked each product relatively.



SOMETHING FOR NOTHING

Qualified network administrators, here's a freebie: Express Systems Inc.'s Express Meter Audit Kit performs a 30-day audit of application usage for any number of users on any network. It calculates and displays the savings possible by using license optimization techniques. The Audit Kit costs \$295 but is available to qualified network administrators at no charge. A version is available to be downloaded on the Internet from the Software Management Resource Center at <http://www.express-systems.com>.

PERFORMANCE

Installation and configuration

We installed and configured each product to perform management functions on all three server platforms and all clients on the network. We scored products on their installation's level of automation and relative ease of use.

We awarded a score of satisfactory to products that were straightforward for a network administrator to install. We awarded bonus points for additional automation, such as modifications to system files and log-in scripts, distribution of the application to other clients or servers, or particular ease of use.

We deducted points if a product required significant manual configuration, if it was particularly difficult to

But what about tomorrow?



While other PC manufacturers are still struggling to get CDs to load, Macintosh users can create their own multimedia, work in 3-D, surf the Internet and see what's real about virtual reality. Today.

to Windows 95 really the right way to get there?

The future of computing.

In a word, it's multimedia. Microsoft and Intel say it's the future. So do we. The difference is, we deliver that future today. To see what we mean, simply turn a Power Mac™ on. When you do, you can not only get down to work (or play) with the CD-ROM of your choice, you can also start using 3-D graphics. You can talk to your Mac. And have it recognize your command. You can videoconference across continents. You can even dive into virtual reality.* All at the touch of a few keys and the click of a mouse.

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To do all this, you need power. And the best way to get it is with a Power Mac. In recent tests, for example, the RISC-based Power Macintosh® 9500 outperformed a 120 MHz Pentium-processor-based



Because Power Mac computers are based on the blistering fast PowerPC® RISC chip, they have power to spare for tomorrow's advanced applications like interactive media and virtual reality.

PC by 63% on average. When running scientific and technical apps, the performance advantage jumped to 80%. And for graphics, the Power Mac was more than twice as fast.**

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Of course, all the raw power in the world is worthless if you can't use it. That's why every new Mac includes an innovative help system that doesn't just answer your questions, but shows you what to do, where to click and what to type to get things done. And why we make it so easy to create Internet connections, install new software and set up entire new networks from scratch.



The Power Macintosh 6100/66 DOS Compatible includes both a 66 MHz 486 chip and a RISC-based PowerPC chip, making it the most compatible computer you can find.

Today, every new Macintosh can read and write DOS and Windows disks. But our compatibility goes further than that. The Power Macintosh 6100/66 DOS Compatible, for example, runs thousands of DOS and Windows applications, in addition to thousands of programs for Macintosh. And our new Power Mac systems accept standard PCI cards.

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Eleven years after it was first introduced, Macintosh is still the only personal computer in the world designed from the start as a seamless integration of hardware and software.

More choices than ever.



Today, every new Macintosh can read and write DOS and Windows disks. But our compatibility goes further than that. The Power Macintosh 6100/66 DOS Compatible, for example, runs thousands of DOS and Windows applications, in addition to thousands of programs for Macintosh. And our new Power Mac systems accept standard PCI cards.



to see answers where others only see numbers

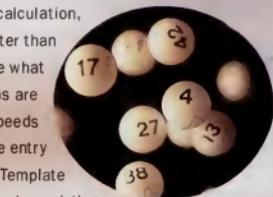


Introducing new Microsoft Excel for Windows 95.

Now you can see numbers from any angle. List them, chart them, sort them in ways that simplify analysis, that reveal the answers you need. With new Microsoft® Excel, you can use AutoCalculate to find the sum, average, count, minimums, or maximums of specific cells simply by highlighting them. (You no longer create scratch formulas every time you need an answer.) To spot geographically based trends and relationships, use the new mapping capabilities of Microsoft Excel to analyze sales by territory, for example. PivotTable® views let you rearrange the headings inside your spreadsheet to get a new view of your data. If you want to view revenues by product instead of by region, simply move the "product" heading and the entire table adjusts. And for people who value the different perspectives different people can offer, Microsoft Excel now lets multiple users enter and edit data in the same worksheet at the same time.

**Everything from recalculations to pivot tables is faster.
Routine tasks now happen automatically.**

Answers appear in record time because formula recalculation, charting, cutting, pasting, and database operations are faster than ever. Up to 70% faster. And now that the software can sense what you are doing and complete the process for you, fewer steps are required to complete a task. AutoComplete, for example, speeds data entry by recognizing the first few letters of a repetitive entry and automatically finishing the word for you. Using the Template Wizard can help you get a head start on your work by turning existing spreadsheets into templates and by setting up an automated system to track important fields in a separate database. Nothing slows you down, not even questions. To find out the best, quickest way to do something, you ask the Answer Wizard. "How do I get this page to print sideways?" Type in the question and the Answer Wizard will show you how.



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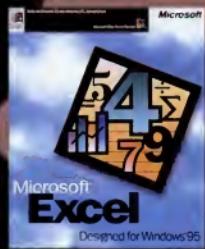
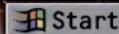


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► 3-D illustration and modeling software

Form Z delivers strong modeling, rendering

■ New with Version 2.7, the RenderZone rendering engine lets you create high-quality 3-D images

By Mike Heck

FORM Z 2.7, a major upgrade to Autodesk's Inc.'s three-dimensional modeling package for the Power Macintosh, offers some of the most elaborate 3-D modeling for its platform. It can be difficult to master, however, and it lacks animation capabilities. Nevertheless, even in the \$2,000 price range, this is the only modeling package for the Mac or PC that offers workstation-level solids modeling.

Form Z 2.7, which ships in a standard version or with the more advanced rendering engine RenderZone, addresses the rendering deficiencies of the previous version. Both updates include an advanced rendering engine from LightWork Design Ltd. The standard package adds shadow-casting light sources and better general-purpose shaded rendering; RenderZone lets you employ high-quality environmental mapping, depth, shading, and similar effects.

We evaluated Form Z with RenderZone using the test plan we created for our midrange 3-D illustration software product comparison (see June 5, page 62).

PERFORMANCE

Setup

We rate Form Z's setup satisfactory because it wasn't as automatic as we would have liked and because problems surfaced with the hardware protection key.

Most Macintosh setup utilities

Product summary

Form Z

Version 2.7

Autodesk Inc.
Columbus, Ohio

(614) 488-9777; fax: (614) 488-0848

Version 2.7's greatly improved rendering capabilities make up for its one major weakness — the lack of animation. Its exceptional solid and surface modeling functions, however, let you represent almost any object as a three-dimensional model.

Price: \$1,865 estimated street (with RenderZone).

Pros: All the heavy-duty 2-D and 3-D form manipulation and sculpting functions you'll likely require; includes advanced rendering capabilities.

Cons: No animation; requires extra learning time.

automatically sense your hardware and load typical components for your model of Macintosh (680x0 or PowerPC). In contrast, Form Z is limited to a custom installation where users manually pick the desired components from a scrolling list. But this wasn't so bad; we only needed to make a few selections (such as the PowerPC version of the software and batch renderer along with the texture maps) and the installer then put the components into the proper folders. The hard disk and memory requirements for both standard Form Z and Form Z with RenderZone are reasonable — 10MB and 16MB (24MB to 40MB recommended), respectively, for a Power Macintosh — and we didn't have to fuss with memory settings.

We had to play around with the hardware lock and restart the system multiple times before it recognized the lock.

2-D scene creation

Form Z was efficient and flexible at letting us create two-dimensional scenes. We rate the program excellent in this category. Not only is its interface replete with menus, dialogs, and tool palettes, but it was easy to simplify the displays and customize other aspects of the program to match our personal style. And Form Z's 2-D drawing functions are very complete, so we could perform most of our 2-D design and drafting work without switching to another software package.

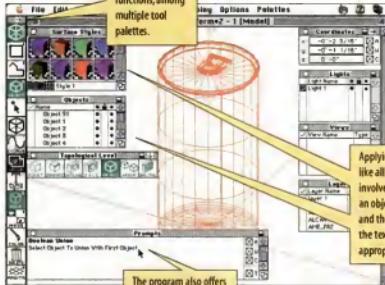
The software's complete range of mathematical drawing methods — nonuniform rational B-splines, splines, and Bezier curves — lets you generate a variety of smooth lines.

These are developed into 3-D objects using simple parallel extrusions or more elaborate lathing (revolving) and sweep functions. You can edit models at various stages in the process, such as adjusting the curved outline of a 2-D shape before it's extruded, or sculpting the face of a fully formed 3-D model.

To make 2-D drawing easier, we eliminated all but three pertinent tool palettes (there are eight total), closed windows that weren't immediately required (such as layers and coordinates), and switched to a 2-D view with a reference grid — a grid that can be displayed on an X, Y, or Z plane and that facilitates aligning lines or shapes. We could tile the dif-

ferent views to simultaneously view 2-D and perspective windows; we also had as many as 18 views of our object or scene. Each view, or window, offers extensive customizing options. For example, altering the position of the sun affects shadows and surface appearance during rendering.

Form Z segregates 2-D and 3-D modeling commands, as well as editing functions, among multiple tool palettes.



The program also offers numeric entry and command status using a separate window.

Although all Form Z operations require several steps, it took us only about a half-hour to become acclimated to this style of working. To create a square shape we had to select the 2D Surface tool, then the Rectangle tool (from a second palette), and finally click the mouse two more times within the drawing area to actually make the square. To its credit, however, this method let us mix operations and reduced the muscle tension that sometimes results from drag-and-drop operations.

Form Z provided all the closed primitive shapes necessary for our test drawing, including polygons, circles, and ellipses. A third palette, containing open shapes (lines and arcs), let us draw one segment at a time — which we combined into shapes unique to our project. In this situation, Form Z's modelless operating style, which minimized drawing steps by letting us simply select a new icon and continue drawing, was a great benefit. We easily switched among the Vector Line tool (which lets us combine a series of segments and arcs in a single shape), various arc tools, and back to a straight line without losing our position on the drawing grid.

For mechanical design or similar

work, Form Z's drafting tools can reduce your reliance on separate 2-D CAD software. Special-purpose tools such as Fit Fillet (which rounds off line segments or objects), Dimension (which automatically calculates physical sizes of elements, distances between them, or parts of elements in a drawing), and Leader Line (which uses arrows to point from one element to an-

cations. One thing Form Z doesn't have is that its closest competitor Ray Dream Inc.'s Ray Dream Designer 3.1 for Power Macintosh offers is kerning, which determines the spacing between pairs of characters.

3-D modeling

Form Z furnishes excellent 3-D modeling — it not only lets us do straight-line extrusions of 2-D lines and curves into solid objects, but also enabled us to employ more sophisticated techniques, such as sweeping a 2-D curve around an axis. A long list of other functions, such as Boolean operations (which Designer lacks) and handy editing, contribute to the excellent score.

Most impressive is the fact that Form Z offers true solids modeling; in contrast, most mainstream packages create 3-D entities by stretching simple surfaces over an empty framework, so you can't easily represent attributes such as wall thickness or the density of a material. Solids modelers do some of their most effective work in the architectural arena. That's because buildings are constructed from boxlike volumes that don't tax the computer as do mechanical designs, with their intricate curves. Form Z, however, isn't limited to a particular illustration style for solids modeling; it produces hybrid objects called "surface solids" (double-sided surfaces that enclose 3-D space), but it also produces traditional surface objects (a one-sided skin that's molded to form a hollow shape).

With Form Z, any 2-D surface can become the starting point for a solid model, which can be derived in many ways: by extruding along parallel lines, extruding to a point, or by lathing (or revolving). In addition, you can make terrain models from 2-D contour lines (the tool generates solid landforms from contours).

Performing basic 3-D extrusion required very little work. We simply selected the 3-D Extrusion tool and then picked a primitive shape (such as the circle); immediately, a 3-D surface solid (in our case, a cylinder) appeared. Extruding to a point, which we used to build a cone and pyramid, required the same procedure. At this stage, we employed sev-

er editing tools and later combined our basic 3-D shapes into a more elaborate model. Form Z lets us move and size complete objects or work with individual segments and faces of 3-D objects. In addition, the Derivative Extrusion tool let us use existing segments and faces as the starting point for other shapes.

The Revolve tool performed a traditional sweep around one of the Cartesian axes (x, y, or z) or a custom axis. We also swept an object around lines and curved paths to get interesting results. Likewise, we had no trouble generating different types of helixes (such as a wire helix along a path). In most transformations, Form Z's preview dialog let us see the effect before proceeding. We were particularly pleased that Boolean commands work with both 2-D and 3-D shapes. When performing Boolean operations, we intersected and subtracted 3-D solids by merely selecting the appropriate tool (Union, Intersection, or Difference) and picking the shapes for the operation. In the same way, we successfully used Trim and Stitch functions to blend and cut surface meshes. We further adjusted the shape of meshed objects using the Deform tool; this tool also moves the faces

of solid objects, which we found convenient when making a dimple on an otherwise smooth area.

Another unique feature that most comparable programs don't offer is the capability to weld shapes. Form Z's Attach Object tool lets us glue surfaces of several objects together, including 2-D and solid shapes, which would require many more steps with other software.

Form Z's surface texture capabilities are more wide ranging and flexible than those of comparable programs. The Surface Styles palette and dialog let us assign textures to our models and edit shadings to them. We could even add procedural shaders, such as marble, mist, and wood. After customizing various textures, we could then save them to our own personal palette.

When assigning textures, we were pleased with the ease and precision with which Form Z's Texture Map lets us map both procedural and pre-made textures onto the surfaces of objects. In addition to numeric positioning, we could pick a mapping method (five are available, includ-

ing cylindrical and cubic). We also created decals (as many as 32 decals can be applied to a single object), which we could use to apply a label to a bottle or to design partially reflective surfaces.

Rendering

Form Z earns a very good in this category because final image quality is impressive, the rendering setup is not at all complicated, and its seven levels of rendering gave us a lot of flexibility when creating and rendering objects.

These levels include



The new RenderZone rendering engine includes many controls to adjust the quality of the final image for different applications, such as high-quality printing or less-demanding multimedia applications.

five useful display modes including Wireframe (a mesh object), QuickPaint (a quick shaded view), Hidden Line (it shows a line drawing with certain lines hidden), Surface Render (a polygon-level rendering), and Shaded Render (with smooth shading, shadows, and anti-aliasing). The sixth and seventh higher quality levels are included in the RenderZone component.

We were pleased to be able to define multiple light sources, including Distant (such as sunlight), Point (a light bulb, for example, that radiates in all directions), or Cone (targeted in a certain direction and with an angle of influence; a spotlight). The Lights palette and dialog helped us define new lights and edit lights already in our scene; we could also add as many lights as we wanted. As in other dialogs, sliders and numeric fields let us quickly adjust all lighting parameters; a preview window would then verify the changes via a thumbnail image.

We rendered the scene displayed in the active window by opening the Display menu and selecting one of the rendering levels, which range from Flat, Gouraud, and Phong to full Raytracing. Depending on the quality we selected, we could switch certain effects — such as environmental mapping, background, and anti-aliasing — on and off.

Image quality was as good or better than renderings we've produced with more expensive packages, such as Electric Image Inc.'s Electric Image Animation System. The character of textures, reflections, and shadows was very realistic; in some cases we were hard pressed to tell the difference between a Form Z rendering and a real photograph.

Animation

Like Alias Research Inc.'s Sketch 2.0 and Ray Dream's Designer 3.1, Form Z is not designed for anima-

tion. The program receives a score of unacceptable in this category because it does not include an animation module.

Import and export

Form Z provides a substantial collection of extensions and gave us broad control over the import and export process. Because it has more formats than average and provides multiple options within formats, we

give anyone with prior CAD or Macintosh drawing experience enough background to do productive work. Some areas, however, including advanced extrusion, editing symbols, and drafting, could stand a bit more explanation.

The main documentation is divided into five chapters that are spread among three of the remaining manuals. Users receive a progressive presentation of the software's features. This material follows the structure of menus and commands, so we could read it in parallel with learning the unique parts of the package.

Chapters are generally self-contained, so you don't have to jump around a lot. Only the Drafting manual contains an index, but all the manuals contain cross-references to the others. Features new to Version 2.7 are found in two separate addenda. A Help command provides on-line summary information about tools and commands.

Support policies

Although not quite as generous as some, Autodesk's support policies are better than average and earn a score of good. Form Z comes with four months of free (but not toll-free) technical support and product updates. From then on, you can subscribe to a support plan at an extra cost. Form Z comes with a 30-day money-back guarantee. Phone support is available weekdays from 9 a.m. to 6 p.m. Eastern time. You can also get support by fax or via the company's America Online forum.

Technical support

Because we didn't encounter any obstacles in getting technical support and Autodesk's technicians went above and beyond what was required, we rate technical support excellent. Our phone calls were answered quickly by actual people — as opposed to voice menus — and then immediately connected to technicians; at no time did we wait on hold. Equally important, the service level was high. Questions of various difficulty levels on a number of topics were answered completely. Support staff asked for our phone number and followed up to make sure we were satisfied with the responses.

Pricing

With an estimated street price of \$1,865, Form Z's pricing is satisfactory. It is three to four times the price of mainstream 3-D illustration products such as Ray Dream's Designer. It has plenty of design tools and new rendering capabilities, but other Macintosh 3-D packages give you animation and many of Form Z's 3-D illustration functions for a lower cost.

Report Card

3-D illustration and modeling software

PREVIOUSLY REVIEWED*
Ray Dream Designer 3.1
for Power Macintosh

	Weighting	Form Z 2.7	Price	\$1,865
Performance				
Setup	50	Satisfactory	25.00	Very Good
3-D scene creation	125	Excellent	125.00	Excellent
3-D modeling	150	Excellent	150.00	Very Good
Rendering	175	Very Good	131.25	Good
Animation	75	N/A	0.00	N/A
Import and export	50	Very Good	37.50	Good
Speed	100	Excellent	100.00	Excellent
Support and pricing				
Documentation	75	Very Good	56.25	Very Good
Support policies	75	Good	46.88	Good
Technical support	50	Excellent	50.00	Very Good
Pricing	75	Satisfactory	37.50	Very Good
Final score	7.5		7.1	

*Reviewed June 5, 1995.

GUIDE TO REPORT CARD SCORES

InfoWorld reviews only finished, production versions of products, never beta-test versions.

Products receive ratings ranging from unacceptable to excellent in various categories. Scores are derived by multiplying the weighting of each criterion by its rating, where:

Excellent = 1.0 — Outstanding in all areas.

Very Good = 0.75 — Meets all essential criteria and offers significant advantages.

Good = 0.625 — Meets essential criteria and includes some special features.

Satisfactory = 0.5 — Meets essential criteria;

Poor = 0.25 — Falls short in essential areas.

Unacceptable or N/A = 0.0 — Fails to meet minimum standards or lacks this feature.

Scores are summed, divided by 100, and rounded down to one decimal place to yield

the final score out of a maximum possible total of 10 (plus bonus). Products rated with 0.2 points of one another differ little.

Weightings represent average relative importance to InfoWorld readers involved in purchasing and using their product category. You can customize the Report Card to your company's needs by using your own weightings to calculate the final score.

The Test Center Hot Pick is InfoWorld's award for outstanding products we have evaluated in stand-alone reviews or product comparisons. To receive the Test Center Hot Pick, a product has to offer what InfoWorld deems to be a stand-out feature or technology that is unusually valuable or revolutionary compared to competitors.

The product must also score at least satisfactorily in all Report Card categories and receive a final score of 7.0 or more.

Image quality was as good or better than renderings we've produced with more expensive packages, such as Electric Image Inc.'s Electric Image Animation System. The character of textures, reflections, and shadows was very realistic; in some cases we were hard pressed to tell the difference between a Form Z rendering and a real photograph.

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Form Z rendered our 24-bit, high-resolution TIFF file in far less than the 2 hours required for a satisfactory score.

With an average rendering time of 57 minutes, 41.2 seconds, Form Z is the fastest Power Macintosh 3-D package we've tested to date. The average time was just slightly ahead of Designer. We rate speed excellent.

SUPPORT AND PRICING

Documentation

Form Z's six spiral-bound manuals are impressive in form and content, and well deserving of a score of very good. The 200-page tutorial, which covers most aspects of the program in a step-by-step sequence, should

82%

would do it

Again.



Gee, these values are swell!

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*Computer Intelligence InfoCorp's Consumer Technology Index study, 1995.

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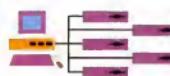


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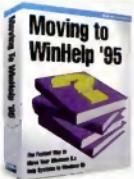
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Kelli Flanagan

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Des Plaines, IL 60018

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SEPTEMBER 18 SPECIAL REPORT INFOWORLD 100: We present the top 100 users of client/server technology. Months of research speaking with hundreds of IT departments about their client/server projects resulted in a detailed report on the most aggressive, innovative companies. This 22-page report will tell you how these companies put together their projects, what roadblocks they ran into, and how they overcame these roadblocks.

ENTERPRISE FEATURE: IBM's purchase of Lotus Development Corp. was the largest software acquisition this year but by no means the only one. What happens to corporate buyers when software companies merge? Risks include shifting product focus, changes in support priorities and policies, and general chaos until the two organizations fully merge.

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SEPTEMBER 25 PRODUCT COMPARISON ISDN BRIDGES: If even the fastest modems are proving too slow for connecting your remote users to the corporate network, you're probably already considering ISDN. We've tested four ISDN bridges that could help speed things along: Ascend Communications Inc.'s Pipeline 5000; Combinet Inc.'s Everywhere 2000; Digi International Inc.'s PC IMAC; and Gandalf Technologies Inc.'s XpressConnect LANLine 5242 Edge Router.

ENTERPRISE FEATURE: Cable companies are creating a new kind of modem that promises to take advantage of the high-speed bandwidth of their cable infrastructure, which outperforms everything the phone companies have offered to date. But the multiple-megabit performance is far from a sure thing for businesses demanding reliability, security, and interoperability.

FIRST LOOKS

► Macintosh word processor

WordPerfect in dead heat with Mac Word

By Rich Grace WordPerfect for the Macintosh still plays second fiddle in market share to Microsoft Corp.'s Word. Nevertheless, No. 2 is working harder, and the effort shows. Though Novell Inc.'s WordPerfect 3.5 is an incremental upgrade from 3.1, it's

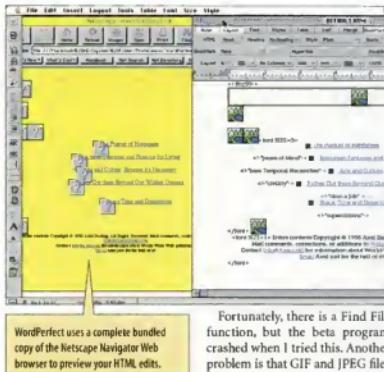
worthwhile for many users, and in several areas it's superior to Word.

Version 3.5 retains its attractive, well-designed interface and adds new BookMarks and Hypertext Markup Language (HTML) toolbars that can be displayed or hidden with the click of a button. Another new toolbar is used for WordPerfect's new Text-to-Speech features. Toolbars reside on each document window, a subtle but very helpful feature that saves much use-

less mouse wandering.

WordPerfect's most important new capability is its integrated Web Page editing. You can create an entire World Wide Web page in WordPerfect using the HTML and BookMarks toolbars. Crucial page layout features include the capability to define headings, insert graphics, preview your Web page design, and define graphics as a map for jumping to other locations. Using the BookMarks toolbar, you can place in your document hyperlink jumps that use Uniform Resource Locator (URL) Internet addresses, or WordPerfect macros, and other documents. Previewing your HTML documents is especially slick; a copy of Netscape Communications Corp.'s Netscape Navigator is automatically kicked up to view your page layout. The bundled copy of Netscape (Version 1.1N) is the latest version available for the Mac.

I ran into some glitches in my testing of WordPerfect's HTML compatibility. At least in the beta version I received, Version 3.5 does not support the latest codes for font



WordPerfect uses a complete bundled copy of the Netscape Navigator Web browser to preview your HTML edits.

formatting, centering, and other new HTML 2.0 and 3.0 features. To test this, I imported a complete Web page text file from a PC system, but tags and formatting commands did not display properly. Moreover, the insertion of graphics onto an HTML page design could be more intuitive; you're expected to know the exact location of a desired graphic in your system (or on other sites). This doesn't cut it on the Mac, where users should not have to tell a program the exact directory path to a file. (An Internet address is another matter.)

Fortunately, there is a Find File function, but the beta program crashed when I tried this. Another problem is that GIF and JPEG files are the overwhelming standards on the Internet; yet Macintosh applications usually don't accept files in those formats. (Novell states that a JPEG filter will be included in the release version.) Where does that leave the Mac user who wants to build his own Web pages using resources from other systems? With a big headache.

One frustrating omission in WordPerfect's sleek user interface is a paragraph formatting toolbar. You can set line spacing, first-line indent, and spacing between paragraphs, but the relative level of control is incomplete. On the positive

side, table creation is phenomenally easy using the Layout toolbar.

WordPerfect 3.5 also offers expanded support for Apple System 7.5 features such as QuickDraw GX, PowerTalk, and Cross-Application Drag and Drop. Finally, a brilliant Make It Fit feature forces your document to fit itself within a prescribed number of pages. For technical writers and anyone else with a space constraint for their documents, Make It Fit is very handy.

One factor that makes WordPerfect such an appealing option on the Mac is its price. For \$189, you can buy and use one of the state-of-the-art word processors on the Macintosh platform. It outperforms the competition and provides greater value with its tagless HTML editing features. Because this will be WordPerfect's last revision before Copland (Apple's forthcoming OS) comes out, there's no support for OpenDoc.

Before releasing this program, Novell needs to do serious work on its HTML coding to make the product compliant with the current standards. Otherwise, for those who simply want to do word processing, WordPerfect 3.5 can be considered the best of breed.

Rich Grace is the author of several books on presentation graphics and word processing topics, including the upcoming *Using PowerPoint 7 For Windows 95* from Que.

► Network management

NetFinity: Pick a protocol and a platform

By David Strom

BM'S ENTRY INTO multipurpose desktop network management may have escaped your attention. However, with Version 3.0 of its NetFinity product, which adds the much-needed support for NetWare in all flavors from 3.11 through 4.x, there is finally something to look at.

NetFinity can easily hold its own against Intel Corp.'s LANDesk Management Suite or Saber Software Corp.'s Saber LAN Workstation, particularly when it comes to managing a mixture of OS/2 machines and

Windows 3.x clients on NetWare servers. (Support for Windows 95, but not Windows NT, is coming.)

The product is especially useful for its alert notification, asset collection, and remote-control features, and it supports a mixture of NetBEUI, TCP/IP, and IPX protocols, as well as dial-up connections directly to a server.

NetFinity's strength is that it provides information for all operating systems and protocols in a similar format, making it easy for time-pressed network managers to get the information they require.

For example, you can easily set up the software to notify your pager every time someone changes a CONFIG.SYS file — whether that file is on your NetWare server, a Windows desktop, or on an OS/2 machine.

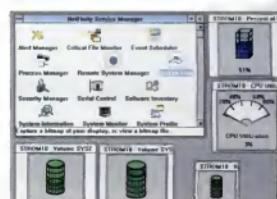
That's an extreme example, but it gives a good flavor of the kind of power available. Other network management products require more effort to do these kinds of tasks.

I especially liked the ability to monitor critical server events and processes, such as disk space remaining or particular executable programs.

Again, NetFinity's routines are the same, whether managing NetWare Loadable Modules (NLMs), Windows executables, or OS/2 server processes.

There were a few glitches in NetFinity's reports on NetWare memory conditions and server processes, but IBM assured me that they'll fix these soon.

Installing most network management products in such a mixed protocol and operating system environment can take the joy out of anyone's day. NetFinity's installation went with relative ease, despite its strange



NETFINITY clearly displays data from NetWare and OS/2 servers, as well as from Windows 3.x and OS/2 clients.

terminology.

There are two pieces of software that come in the box: Managers (for either OS/2 or Windows clients) and the control consoles used to view network conditions and alerts, and Services (for all three operating systems) enable each desktop to report statistics and be controlled.

► SQL front end

TrueAccess an easy, honest Windows/Macintosh querying tool

By Ed Dowgiallo

TRUEACCESS is Blyth Software Inc.'s tool for giving users cross-platform access to data in Oracle Corp., Sybase Inc., and Microsoft Corp. SQL Server databases. It can generate fairly complex SQL queries, coupled with basic formatting functionality.

I had no problems installing and learning to use the program, which is now one of a still-too-small set of choices for organizations that need to support both Apple and Intel PC users.

Blyth clearly chose to implement the Macintosh version first — witness the occasional reference to the Option key in some of the help text.

The tool shares some of the characteristics of Blyth's Omnis7 fourth-generation language, including the need to install fonts that bring Apple Computer Inc.'s Chicago, Geneva, and Monaco font styles to the Intel PC side.

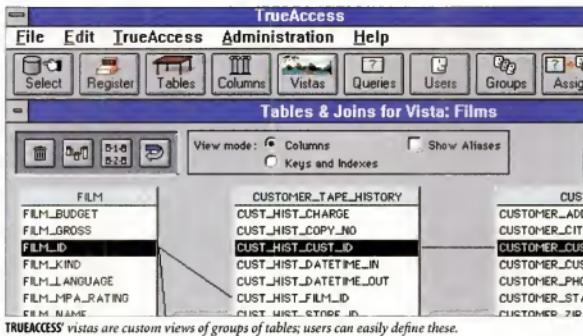
Like Omnis7, TrueAccess also uses a special password font to prevent passwords from being displayed as they are typed in.

TrueAccess has a special administration mode, allowing the construction and population of a repository of query information.

Populating a repository begins by importing tables and their columns. It is possible to give aliases to each type of object, making the user's life considerably easier later on.

I gave the column called QOH in our VendorParts table an alias of Quantity On Hand.

Unfortunately, TrueAccess assumed that all column names would



TRUEACCESS *vistas* are custom views of groups of tables; users can easily define these.

be unique across the tables in a repository, and did not supplement identical column names by table name when presenting lists of columns to the end-user.

Blyth does not take as much advantage as it could of the existing data dictionaries in each of the three supported databases. This was most apparent when I started defining vistas, which are custom views of groups of tables.

TrueAccess supplied me with a very nice entity relationship diagram style interface for defining vistas, but did not use the referential integrity information in the underlying database to automatically join the tables I selected to include in a vista.

Automatic linking tables for joins was done strictly on the basis of

identical column names in different tables. (Remember the unique column name assumption?)

TrueAccess partially made up for this by allowing me to drag and drop columns to manually create joins. In addition, vistas were not allowed to have cyclic relationships among the tables.

Queries against vistas can be defined by either administrators or end-users. Administrators can assign users to reporting groups and give these groups access to sets of vistas and queries.

I found this all very simple to set up, but the bottom line is that it is a lot of work. Plan on this being a full-time job if your database is large or complex.

The query definition and output formatting covered the major bases. Query definition was easy, done mainly through forms and pick lists. Filtering, sorting, aggregation, and pseudo columns were all covered.

Output formatting was far from sophisticated, and is an area that needs work. When defining a query,

the user is also given access to the underlying SQL, which allows power users to take the tool as far as it will go and keep going.

If you're a Macintosh aficionado, TrueAccess is without a doubt one of the best games in town for querying against SQL databases such as Oracle and Sybase.

If you are solely a Windows user, there are definitely better choices available to you.

Ed Dowgiallo, a database consultant, has worked with SQL and related technologies since 1980. He can be reached at edowgi@post office.pvt.net or ed_dowgiallo@infoworld.com.

Opinion ☺

TrueAccess

Version 2.0
Blyth Software Inc., Foster City, Calif.
(800) 346-6647, (415) 571-0222;
fax: (415) 571-1132

Price: \$2,499 administrator kit, \$299 user kit.

Platform: Windows 3.x, Macintosh, and Power Macintosh.

Pros: High ease of use; easy to learn, cross-platform.

Cons: Requires administration; does not take full advantage of relational database management system dictionaries.

Windows desktop utilities

Dashboard steers an easy drive through Windows 95

By S Ryan

WINDOWS 95 users will really appreciate the features Starfish Software's Dashboard 95 brings to the Win95 interface. The thought and work Starfish has put into Dashboard's redesign really show.

I never found the old Dashboard particularly useful or compelling, but the new one has a place on my screen when I am running Win95. Dashboard is basically a control



panel and launch pad. It displays a calendar, a clock, quick-launch buttons for applications, system status, and a host of other buttons and gauges.

Somehow, they pack all this on to very minimal real estate. Everything is clear and very readable. Also, everything is customizable, so you can assign quick-launch buttons, resize, or hide or show things to reduce the screen space taken by Dashboard.

My favorite function is the ability to change the printer with one click.

You switch through the available printers with a single mouse click. It's very convenient and, in

retrospect, obvious enough to make me ask "Why didn't anyone think of this earlier?"

Several other functions are also good. The clock allows me to see alarms, I can see how my system resources are doing with the monitors for threads, memory, and CPU; and there are built-in buttons for the navigation utilities of Win95.

Unfortunately, Dashboard is not a replacement shell for Win95.

Despite and the fact that screen real estate is at a premium, Dashboard is a welcome utility for Win95 users.

BETA

and run it just fine over the network.

No JNI files, no TSRs, and no changes to NetWare's log-in scripts were needed. On the server, NetFinity uses about 600KB of server memory and about 10MB of disk space.

NetFinity is one of the few network management products that supports OS/2 from both the server and workstation side, which you would expect from IBM.

However, if OS/2 isn't a factor for you, don't let that get in the way of taking a careful look at this product. And, if you are in the market for an IBM server, the software comes pre-installed on most models at no extra charge.

David Strom is president of his own consulting firm in Port Washington, N.Y. His Internet address is david@strom.com.

Opinion: ☺

NetFinity

Version 1.0

NBM, White Plains, N.Y.
(800) 426-2235; fax: (800) 426-4329

Price: \$599 for Manager, \$79 for NetFinity Services single license.

Platforms: OS/2, Windows 3.x, NetWare 3.11 to 4.x.

Pros: Simple to set up; works similarly under NetWare, OS/2, and Windows.

Cons: NetWare monitoring could be better.

Opinion: ☺

Dashboard 95

Starfish Software, Scotts Valley, Calif.
(800) 765-7839, (408) 439-0942;
fax: (716) 873-0906

Pros: \$49.95 for disks and documentation; \$39.95 to download from several services.

Cons: Windows 95, Windows NT

Pros: Printer redirection; alarm; quick-launch buttons.

Cons: Screen real estate is tight.

DOWN TO THE WIRE • NICHOLAS PETRELEY

Fujitsu 230MB 'floppies' look like the future media with a forceful message

THIS WEEK, I'VE BEEN roped into writing benchmark scripts for the purposes of testing 32-bit operating systems. We'll be comparing OS/2 Warp Connect, Windows NT, and Windows 95 (so much for getting a break from Windows 95). While this work is certainly fascinating during those moments when I can stay awake, it's not very good cold-weather fodder.

So for this week's column, I'm going to try to make good on my tenuous reputation as an industry pundit, and punt a little on media. So, I guess you could say that this week, the media is the message. Say, I like the sound of that. It sounds rather deep, whatever it means. Though, I'm already in danger of digressing, or regressing, but that would be another story.

In this case, the media of which I write is the high-capacity removable variety. And I'll tell you up front that the technology and product I favor is the Fujitsu Computer Products Inc.'s DynaMO 230 magneto-optical drive. The unit I've been playing with uses a 230MB disk that looks almost identical to a 3.5-inch floppy, though it's almost twice as thick. The list price on this guy is \$499. Call (408) 432-6333 to reach Fujitsu.

The biggest problem I'm having is figuring out why this is my choice. I've been arguing with myself about it for weeks now (you may have seen me doing so wandering around in Central Park in New York City last week, for example), but I haven't really come up with solid reasoning as to why this should be the medium of the future.



Others have picked the Iomega Corp.'s Zip drive as the favored removable medium. I can see why: it's small (disks are almost the size of 3.5-inch floppies), it's cheap (about \$200), but right now it stores a maximum of 100MB of data per disk, which isn't quite enough for me.

The PDI/CD drives, such as Panasonic Communications & Systems Co.'s LF-1000AB external SCSI drive, are a better bet for me. They go for about \$1,000, and are a combination of "phase-change" technology in a removable storage drive (as much as 650MB) with the added capability to read normal CDs.

The Panasonic compares favorably to a quad-speed CD-ROM drive in performance, so when you consider that you don't have to buy an additional CD drive, you can see you're really getting a lot more drive for the money than it first appears.

Nonetheless, there's something about phase-change technology I don't like, namely that you can write information to any given sector on the disk only a limited number of times. Theoretically, the number is so high that this limitation should never pose a problem (some companies are guaranteeing 500,000 rewrites). But it bothers me. Call it my natural aversion to things that are "good enough."

Speaking of greater storage capacity, Iomega is close to shipping the Jazz drive, which should run less than \$1,000 and store up to 1 gigabyte (GB). As much as I love the idea of a 1GB removable drive, I don't like the fact that the disk is based on Winchester technology.

Such is supposedly susceptible to head crashes and other damage. Maybe I'll sing a different tune when I've had a chance to play with a Jazz drive for a while, but in concept, a removable Winchester scares me more than phase-change.

As for performance, the PDI/CD drives are a bit slower than the Fujitsu DynaMO at reading data (2 minutes, 43 seconds vs. 2 minutes, 31 seconds in one of my tests — somewhat faster than reading off a quad-speed CD-ROM drive, but a lot faster at writing, due to the difference in storage techniques. For example, it took fewer than 5 minutes in one of our benchmarks to write data to the Panasonic drive. It took almost 11 minutes on the DynaMO. Fujitsu says it is on the verge of solving the write speed problem. We'll see.

NO better drives

Perhaps the reason I favor the Fujitsu drive is that it is the ideal happy medium (no offense to Linda Georgian or Kenny Kingston who, whether or not they are really mediums, seem happy enough). It isn't the fastest, but it is fast enough and has a promising future for speed improvements. It doesn't store as much data as some other removable drives, but it stores enough, and there is also a promising future for increased storage capacity. (It wasn't too long ago that these drives could only store 128MB.)

And it offers these features on a medium that stands up to indefinite rewrites, with a shelf life of at least 10 years. It is essentially a high-storage, high-speed floppy drive. Maybe that's the key to why I prefer the Fujitsu. It's probably because I'd like to see a drive like Fujitsu's 230MB magneto-optical replace floppy drives.

After all, the media can be manufactured in

both read-write and read-only format. Imagine getting today's software on a single floppy once again, and never have to worry about accidentally writing over the data on that disk. (Or, better still, wouldn't you like to buy software on 230MB floppies, and reuse them when the software gets out of date?)

Sure, read-only distribution of software is here today via the already popular CD-ROM format. But there are two problems with CDs: The media are more cumbersome to store and handle, and more susceptible to damage than the DynaMO disks.

Only the PDI/CD drives can double as removable storage devices, and they need an entirely different type of media (even in a different orientation) in order to provide writeable storage capabilities.

Is it really possible a DynaMO could replace floppies? Possible — yes. Likely — not yet. Fujitsu is working on a DynaMO 230 drive (\$449 for Apple's PowerBook — available in the fourth quarter) that fits into the floppy slot on a laptop. If you can convince enough OEMs and sell it in such a way that it would add only a couple hundred dollars to the price of a notebook, I don't see how it could be any less than an overwhelming success. Wouldn't you like a 128MB floppy in your laptop?

But, what Fujitsu really needs to do is lower the price of the drives, speed up write-access and eventually increase storage capacity — all of which has been promised. Assuming Fujitsu can make good on these promises (and I see no reason why these goals should be unattainable), the Fujitsu DynaMO seems like it could end up being the ideal one-size-fits-all medium. And that's this week's message.

If you see me talking to myself in Central Park, tap me on the shoulder, or just send me E-mail via the Internet at nicholas.petreley@infoworld.com or CompuServe 71333,426.

OS/2 system utilities

UniMaint an essential bundle of primo OS/2 utilities

By Geoffrey Hollander

INTEGRATED OPERATING systems, such as Windows and OS/2, centralize essential system and program information in INI files. Most of us are familiar with Windows' WIN.INI and SYSTEM.INI files, which contain this information in standard text format. Although this format is easy to work with and edit, data in INI files can be stored more efficiently — and utilized much more quickly — in binary format.

OS/2 takes this approach with its INI files, OS2INI and OS2SYSINI, which enhance performance and let the operating system maintain the file contents — ensuring correctly written entries. But this method of system management can also create problems.

There is no simple way for a user to determine what is in OS/2's INI files. Not even OS/2 itself has a way of removing obsolete entries; thus as you add, change, or upgrade applications, these files become bloated and your system slows down. When there's enoughINI baggage, strange things — including General System Weirdness — often occurs. Also, INI files are always open, so there is no way to make backups of them except during a boot.

SoftTouch Systems Inc. offers a solution with its UniMaint System Utilities pack — one of the most practical and useful tool sets an OS/2 user can own. The assortment centers around UniMaint. Much more than just an INI file editor, this utility runs a series of tests on your

OS/2 INI files to find and correct obsolete references to files, paths, old PM, ProgramList entries, and so on.

Opinion: ☺

UniMaint

Version 4.0

SoftTouch Systems Inc., Oklahoma City
(800) 944-3028, (405) 947-8085;
(fax) (405) 632-6537

Price: \$79.95 introductory; \$99 list.

Platform: OS/2

Pros: Keeps your OS/2 configuration files and your system running at peak performance.

Cons: Some areas of the program are confusing and undocumented (too many hows, not enough whys and whens).

Typically run first in Reporting Mode, UniMaint finds and lists INI problems for your review. You can then take any or all suggested actions or let UniMaint handle the whole process automatically.

MultiMaint and

WorkPlace Shell (WPS)

utilities provide back-

ups of your Desktop,

INI files, or both. Options

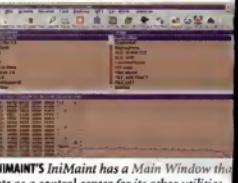
include full or supplemental backup, user-

set default directories for storing

backups, and a range of backup

generation cycles (as many as 100).

UniMaint also contains Uninstall for removing OS/2 applications. Uninstall takes out all program components, including DLLs, OS2INI entries, and any associated help or information files. Simply drag and drop a WPS object or .EXE file onto the Uninstall dialog box to initiate the fully automated process.



UNIMAIN'TS *UniMaint* has a Main Window that acts as a control center for its other utilities.

Undocumented in this version, UniInstall will remove Win-OS applications as well.

For power users, UniMaint doesn't hold back. Every utility has settings you can save as customized defaults or implement on the fly. Within an hour of installation you know this is solid, must-have software for any OS/2 user.

Geoffrey Hollander is well-versed in OS/2 applications. His Internet address is mpouch@europanet.com.

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DISTRIBUTED THINKING • STEWART ALSOP

Bookmarks mark the next chapter in the continuing story of the War of the Web

BOOKMARKS ARE A BIG DEAL. And there is a battle of the titans shaping up over them, one that could shape the future of operating systems. Who would have ever thunk, huh?

Here's the deal. Bookmarks represent a way of returning to some place you've been. As the name suggests, they've been applied in the world of long, structured documents. Document production apps such as Interleaf and FrameMaker have had them forever. Word processing programs got them more recently. But most of us have never used them, because finding your place in a one- or two-page document doesn't rank as rocket science.

But then the World Wide Web happened. And the Web turns the entire worldwide network into a really big structured document, which you can look at one page at a time on your PC. Bookmarks are a big deal now. Indeed, in browsing the Web, there's not a whole lot else that matters. Sure, your browser needs to render images progressively, it needs to interpret error conditions intelligently, it needs the latest security features, and so forth. But users really care about whether they can get back to where they've been before and how they do that. That's just as important as recalculating in spreadsheets.

Even worse, because Web browsers have

spread so fast and can be so consuming, some vendors have developed the attitude that browsers will become the operating system of the future. (Sun Microsystems' SunSoft is having lots of fun pitching Java as the functional equivalent of Microsoft Basic for the Web.) So now browsers are being differentiated based on how they manage bookmarks, and it is this differentiation that is shaping up the battle.

We've ended up in two camps. One camp is trying to compete with Netscape by building the better-bookmark browser. Nearly all of the parties in this camp are building their browsers in Windows and using some form of the Explorer interface in Windows 95 along with OLE to do it. This includes Quarterdeck with its improved version of Mosaic (<http://www.qddeck.com/>), Wollongong with its very cool Emissary browser (<http://www.twg.com/>), and America Online with the Booklink browser it bought last year, which is in beta test GNN Works (<http://gnn.com/gnn/megaweb/facts.html>).



The other camp is trying to extend the functionality of Netscape Navigator with add-on software for managing bookmarks. This includes three pieces of software: 1) SmartMarks, a new, Windows-based product (still in beta) that Netscape is distributing (http://www.netscape.com/comprod/smartsmarks_install.html); 2) Clay Basket, Mac-based demoware designed to show off Dave Winer's Frontier scripting language (<http://www.hotwired.com/staff/userland/clay/index.html>); and 3) Simon, a Unix-based project from the U.K. for figuring out how to manage Internet-based information (<http://www.elec.qmw.ac.uk/simon/>).

Each of these products from both camps has its own, really cool features. SmartMarks has the coolest features (I think) because it monitors Web sites that you mark and alerts you when something has changed, going well beyond remembering where you've been, all the way to telling you when to go back. But the battle that's brewing is between the idea that Windows is the platform, in which case you want to build an entire browser (or, in the case of both America Online and Microsoft, an entire system for access and content navigation), and the idea that Navigator is the platform, in which case you want to build an add-on to avoid competing with Netscape. (By the way, IDG, our parent company, is a minority investor in Netscape.)

The first camp is nuts. The simple fact that about 20 percent of the Web sites (and about 80 percent of the interesting ones) explicitly say that the site has been designed to work

specifically with Netscape Navigator 1.1 means most of us will never use another browser, including Microsoft's Internet Explorer (which is a marginal adaptation of Mosaic). No matter how nice bookmark management is in a particular browser, it won't do me any good if I can't see a Web page the way it was designed. This is particularly important for sites, such as the *Wall Street Journal*, that use the table features in Netscape.

This is an interesting conclusion to arrive at, since Windows is the platform for software. It has always been the successful thing to do in the past to choose the right platform for making software. Indeed, that's how Microsoft became so successful. But as long as you can easily and cheaply get the functionality you want, then the issue is not which platform a browser runs on but how well it provides access to the Web.

It is this perception that leads normally sane people to believe that perhaps Web browsers represent the first chink in Microsoft's armor. Perhaps Navigator will be the environment that users live in and developers work from in the future, they say. Eventually, Netscape will just bundle Windows with Navigator and take control of the desktop, they say.

That's going too far. Web browsers are just another application on the desktop. Netscape has done a superb job of getting its product to be the target of opportunity. As long as Netscape keeps the product in that spot, it will be the one to beat, even for Microsoft. But it will not dislodge the use of other applications nor change the competitive environment for operating systems. Meanwhile, I hope Dave Winer figures out how to get Clay Basket to monitor my favorite Web sites, or I'll have to switch to Windows for Web surfing!

Write to Stewart Alsop at stewart_alsop@infoworld.com.

NOTES FROM THE FIELD • ROBERT X. CRINGELY

Just because the paranoids think IBM's buying Novell doesn't mean it's not true

WE'RE ALL CONSPIRACY THEORISTS. I'm one for sure. We imagine people ganging up in insidious plots to steal our businesses, our women, our baseball card collections. Drop a religious radical on the prairie or a bloody glow in the backyard and we see nothing but plots, plans, peril, and potential anarchy; so of course we hatch our own counter-conspiracies, whether they are actually needed or not. Isn't it great to be an American?

Lou learns to tithe. Not!

A rumor lies at the heart of every suspected conspiracy. And in the PC business lately those rumors have mainly to do with who is going to buy whom in order to bulk up for the big battle of titans that probably doesn't lie ahead. This rumor mongering extends even

to the vestibules of Mormon churches in Utah, where the smart whispering says IBM is going to buy Novell. Forget the overlap of Quattro Pro and 1-2-3, of WordPerfect and WordPro, these whisperers are serious, but still it's just a rumor.

And have you tried the client for NetWare Connect (the modem-sharing utility) that ships with Windows 95? Not even Microsoft can get it to function, but here's a workaround: Open the Win95 registry and leave it open. No, I don't know why this works.

Last week I wrote about Windows 95 for Macintosh, which I pegged as Microsoft's attempt to steal Apple's operating system business starting at the end of next year. Microsoft is keeping silent on this, but the folks at Apple suspect that Windows 95 for Macintosh is really an Insignia Solutions

product code-named Stringfellow.

Stringfellow is a sort of SoftWindows 95 a PC emulator that bypasses DOS and puts a hardware abstraction layer right on top of the PowerPC. And because Stringfellow runs Windows 95 apps on a Power Mac with performance approximately equal to a 486DX/2-66, Apple isn't worried. But what if Windows 95 for the Mac isn't Stringfellow at all?

I've had one reader so far who had the problem to actually load Windows 95 over SoftWindows on a Power Mac 7100. It runs, but without Win95-specific GDI-to-QuickDraw drivers, the screen has to be recalculated one pixel at a time, and jumping from one window to another takes 15 minutes to redraw the screen.

Stuff that doesn't work right

But some conspiracies are real. Take Dell's promise that all XP90 systems would be upgraded for free plug and play. Now it turns out the early systems without Triton chip sets aren't eligible for the free upgrade.

Last week America Online suffered some

very public security embarrassments, but nobody mentioned that AOL's TCP connection, which lets you log on over an Internet link, makes no effort to encrypt anything, including screen names and passwords. Any kid with a sniffer program can steal your stuff and will.

I don't know if security explains why the Win9 support Web server runs BSDI 2.0 — at Intel-based Unix — rather than Windows NT, which Microsoft insists is the ideal Web software solution. Does Redmond know something we don't know?

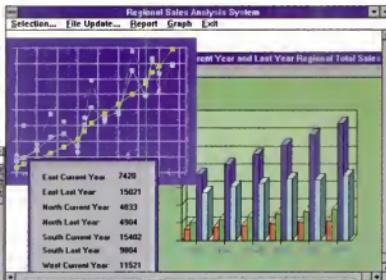
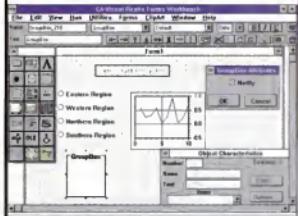
"YOU'RE RIGHT, BOBBY, everyone is paranoid," said Pammy. "And I'm trying through Transcendental Meditation to help calm all those fears. But do you think it's hypocritical, then, for me to be introducing my line of leather and metal chastity belts?"

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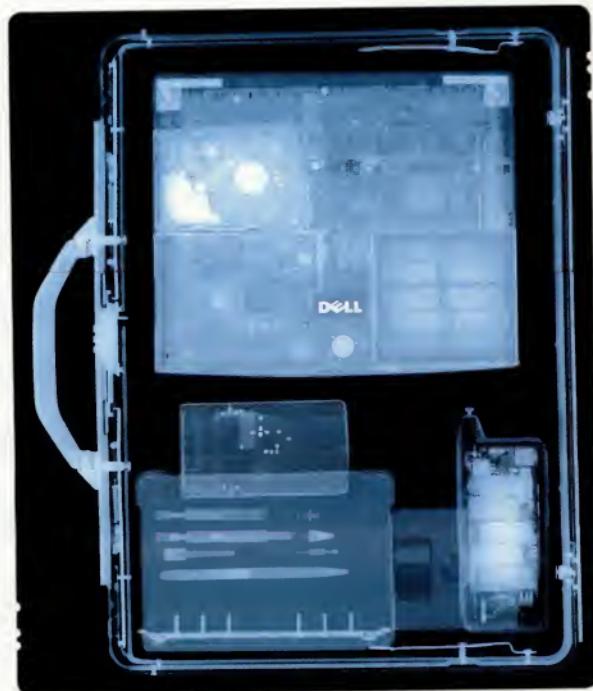
DELL LATITUDE™ LX
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• 810MB Hard Disk Drive
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